

October 1935

TECHNOLOGY REVIEW

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*They tell about
an Englishman—*

*Who closely scrutinized
His income tax blank
And then sent it back*

With the following notation:

*"I have given the matter careful thought
And have decided not to join
The Income Tax."*

. . .

*Now getting around to cigarettes
There are no ifs ands or buts
About Chesterfield
Two words make everything clear . . .*

They Satisfy



*Chesterfield ... the cigarette that's Milder
Chesterfield ... the cigarette that Tastes Better*

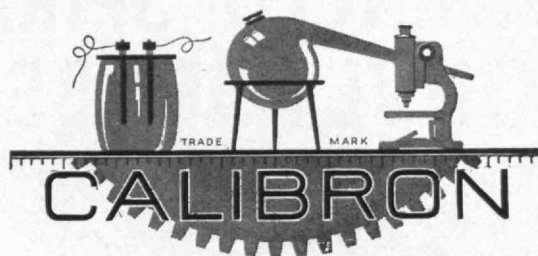
THE TABULAR VIEW

WE PRESENT this month a young engineer whose professional career, not yet a decade long, has carried him to . . . But let CHARLES HINCHMAN TOPPING, '28, tell his own story as he told it to us in a recent letter: "I was a contractor in Santa Fe, N. M., an engineer for an oil company in Venezuela, and saw much of interest in the latter country in a trip down the backbone of the Andes. After the end of the Persian Railroad contract, I batted about that country and became rather more familiar with it than I am with my home town, New York. I also ran surveys for an archæologist digging in the scattered ruins of Biblical Rhages, or Ray, as the Arabs pronounced it. From there I crossed Baluchistan and went up into Afghanistan, to Kandahar and Cabul. . . . From Cabul, I came down through the Khyber Pass into India, trekked a bit in Kashmir, and returned to the States via central India and Bombay." In recording by text and photograph (p. 15 ff.) something of what he observed while working for Reza Pahlevi Shah I, Mr. Topping demonstrates how the "keen Eye-puckered" engineer, taking the world as his workshop, finds his profession a pass-key to unknown or forgotten lore.

DR. COMPTON introduced Dr. ISAIAH BOWMAN, commencement speaker (whose address appears on page 18) as "the kind of a man whom I should like our students to know." President of Johns Hopkins University, he has long been distinguished for his contributions to the social and natural sciences and to the cause of world peace. He is chairman of the National Research Council, vice-chairman of the Science Advisory Board, of which Dr. Compton is chairman, and since 1915 has been director of the American Geographical Society. As an active advocate of international peace, Dr. Bowman is a member of the board of directors of the Council on Foreign Relations, the Woodrow Wilson Foundation, and the World Peace Foundation. In 1918-1919, he was chief territorial specialist on the American Commission to Negotiate Peace, and later served as geographical expert in the determination of international boundaries during the Paris Peace Conference. Last year he was President of the International Geographical Congress which met in Warsaw.

While an instructor in geography at Yale University in 1907, Dr. Bowman was chosen to lead the first Yale scientific expedition to South America. Four years later he accompanied another Yale expedition as geographer and geologist to Peru, and in 1913 conducted an exploration for the American Geographical Society through the little known country of the Central Andes. In recognition of the valuable knowledge obtained in the course of these expeditions, the Geographical Society of Paris in 1917 awarded him the Bonaparte-Wyse gold medal. In 1927 he received the gold medal of the Geographical Society of Chicago, and the following year was Livingstone gold medalist of the Royal Scottish Geographical Society.

(Concluded on page 2)



The first issue of the

CALIBRON NOTEBOOK

contains a description of our unusual Guaranteed Research service; the second is a report on one of our engineering developments. We shall be glad to send you copies on request.

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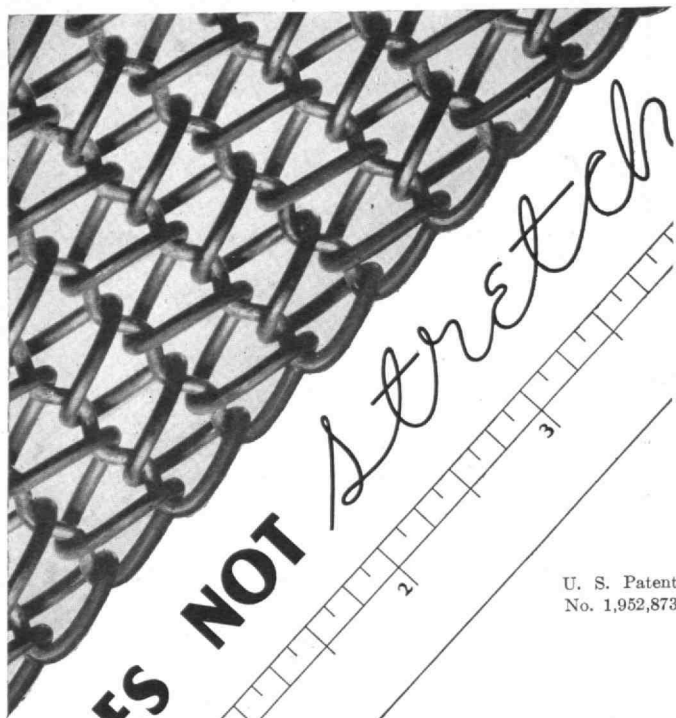
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THE TABULAR VIEW

(Concluded from page 1)

RAYMOND S. STEVENS, '17, sometime member of The Review Staff is now Vice-President of Arthur D. Little, Inc. That he is following in the footsteps of Dr. Little as a skillful interpreter of science is frequently demonstrated in the widely read (because ably edited) *Eulletin* of his company. CH. E. LOBDELL, '17, is Dean of Students at M.I.T. and Publisher of *The Review*. The cover and pages 18 and 19 of this issue constitute a portfolio of striking photographs taken in Mexico by three gifted photographers, all proud of their amateur standing. ALEX. J. KRUPY, '24, is a Chicagoan; ALEXANDER PIAGET and FREDERICK B. WOLF, '28, are from St. Louis. Their pictures have placed Mexico on our list of places that cannot be missed.

MAIL RETURNS

From LEWIS S. GREENLEAF, '94:

In the July issue of *The Technology Review* on page 361 is a short article on the subject of a process of distributing grains of abrasive in the manufacture of abrasive paper and cloth by an electrostatic method, in which article the credit for development of the method is given to Birmingham, England, manufacturers. I do not know from what source your information was obtained, but as a matter of fact, the electrostatic coating methods to which you referred were first developed in this country. The abrasive paper plant in Birmingham is controlled by American interests and was equipped for electrostatic coating methods by American engineers representing the controlling companies.

American companies licensed to use the electrostatic methods are: Armour Sandpaper Works, Chicago, Ill.; Behr-Manning Corporation, Troy, N. Y.; The Carborundum Company, Niagara Falls, N. Y.; Minnesota Mining and Manufacturing Company, St. Paul, Minn.

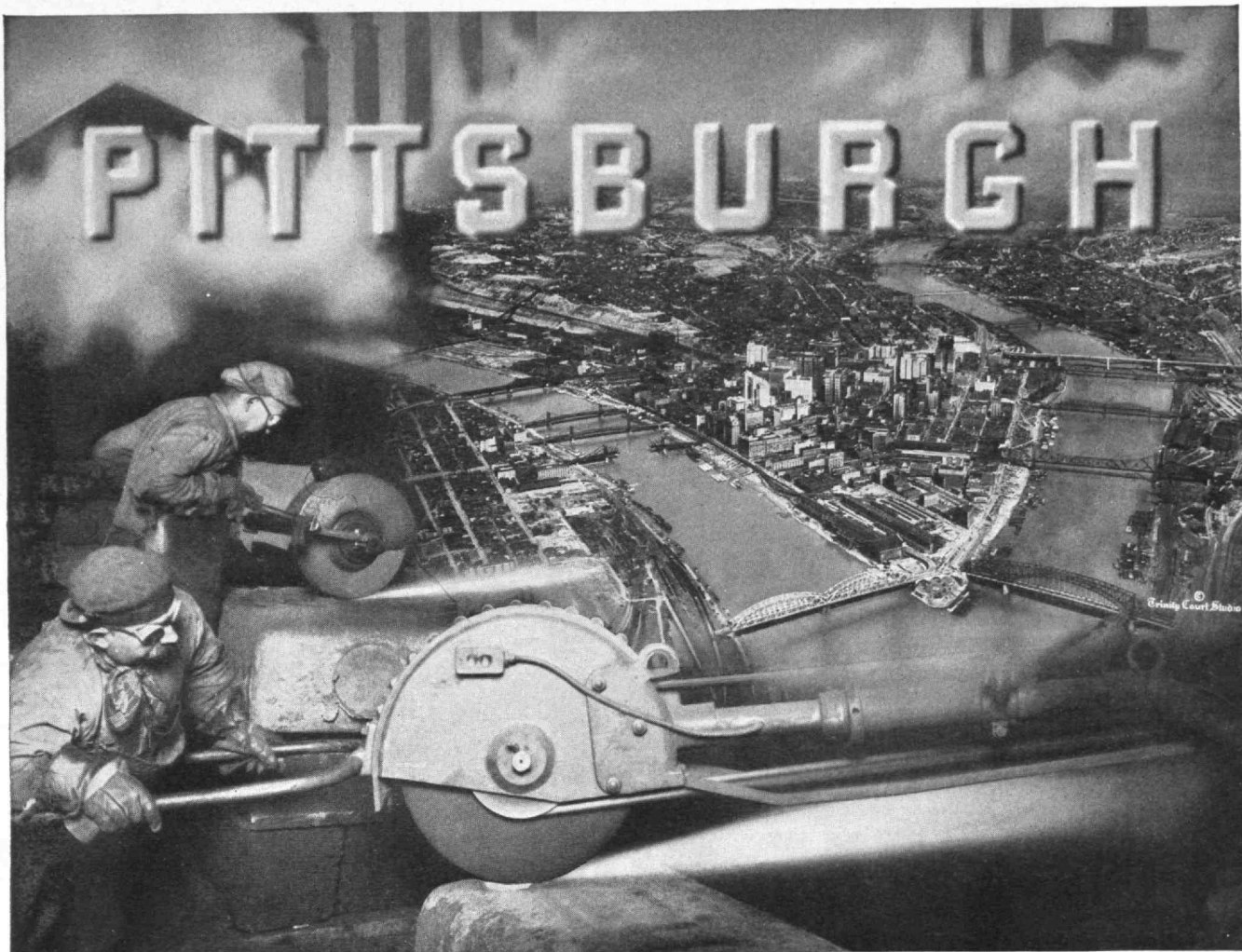
A clearer description of the operation of the electrostatic methods will be found in the September 10, 1933, News Edition of *Industrial and Engineering Chemistry*.

From HENRY ROSE:

In the July, 1935, issue of *The Technology Review* is a reading list under the heading "The Engineer and Social Problems."

As additions, I am suggesting a few titles, particularly a book written by C. P. Steinmetz, "America and the New Epoch"; . . . "Essays on Research in the Social Sciences," Brookings Institute, 1930-1931; "Nature of the Physical World," Sir Arthur Eddington; "Quest for Certainty," John Dewey.

Pointing in the same direction is an article by C. E. K. Mees, director of research of Eastman Kodak, "Scientific Thought and Social Reconstruction." This appeared in the *General Electric Review*, March, 1934. It may be obtained as a pamphlet from the General Electric Company, Schenectady, N. Y.



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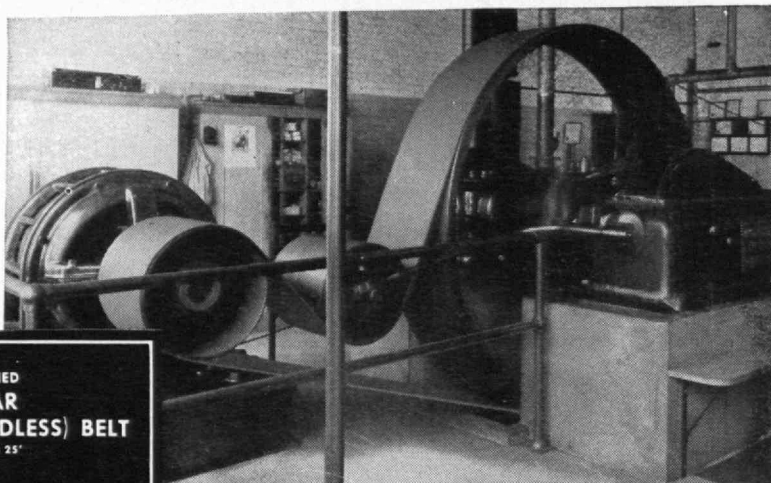
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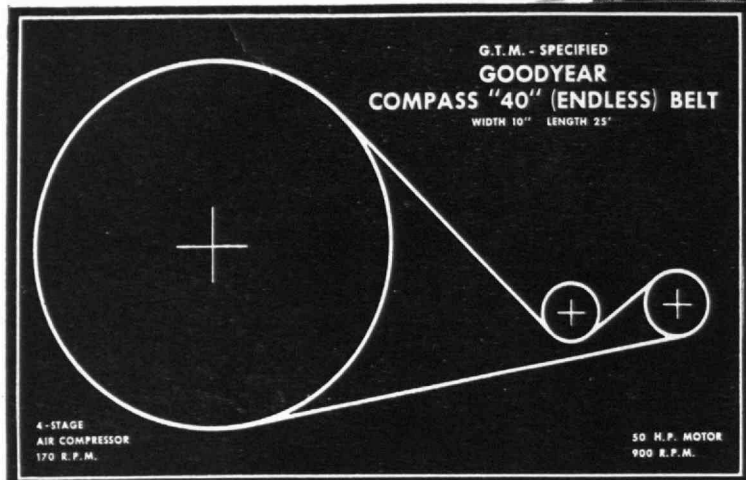
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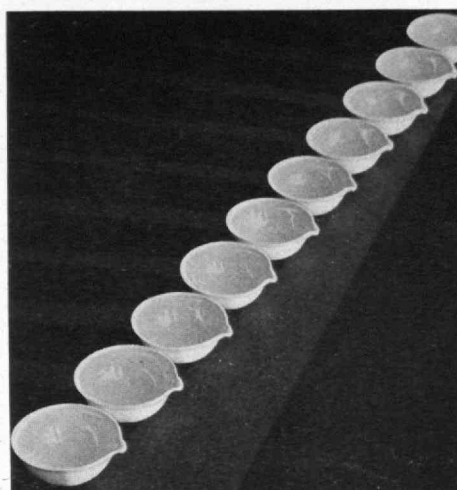
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THE TECHNOLOGY REVIEW

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VOL. 38, NO. 1

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William Rittase

Speed

"Most spectacular is the endless and intricate maze of motion of all the vessels and vehicles for air, water, road, and rail that carry us about. . . . Sheer speed, and the instruments of it, have a beauty to which we are blind to our loss."—Peter van Dresser in *Harper's*

BOATS have long held records for grace, beauty of line, and fascination of motion; increasingly they are taking their place in the up-to-date world of speed and power. Gar Wood in *Miss America X* attained a speed of approximately 125 m.p.h. over a three-mile course, and the speed of the outboard hydroplane has been pushed up over 60 m.p.h. Sailing yachts are relatively slow. *Reliance* was perhaps the fastest single-hull sailing yacht ever built and she made about 16 knots under ideal conditions. Twenty knots may be said to represent the maximum speed obtainable with sail power. In contrast to these records on water stand the much higher records on land and in the

air. On the salt plains of Utah last month, Sir Malcolm Campbell's *Bluebird* averaged 301.337 m.p.h., and the record for airplanes, held by Francesco Agello, Italian seaplane pilot, stands at 440.6 m.p.h.

When a body moves through a fluid medium such as water, it encounters resistances proportional to the square of the speed, but the power consumed is approximately proportional (depending upon hull design and efficiency) to the cube of the speed. A boat, for example, which requires 500 h.p. at 10 knots might use 4,000 h.p. at 20 knots, and 13,500 h.p. at 30 knots. Here is one good reason why boat speed records are comparatively low.

THE TECHNOLOGY REVIEW

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October, 1935

The Trend of Affairs

"May Change the Destiny of the Race"

AN artilleryman *par excellence* is the modern physicist. Using particles or rays, he bombards common elements and induces artificial radioactivity (most of the common elements, including ordinary salt, have been rendered radioactive in the past two years) and with high-voltage "guns" he has achieved the goal of the alchemist, the artificial transmutation of the elements. Biologists, too, have taken over this ordnance technique with the result that they have induced artificial changes in the germ cells — the artificial transmutation of the genes.

The discovery that x-rays can be used to affect the process of evolution (The Review, December, 1930) has been confirmed by many workers. If a germinating seedling, for example, be exposed to strong x-rays, it may develop into a new species, different from its parent stock. Tobacco plants, under the influence of x-rays, have produced a new giant species, 12 feet tall.

As T. H. Goodspeed of the University of California reported last month, x-rayed plants may not only produce offspring with new peculiarities, such as changed leaf size and flower color, but these offspring may produce other changes without being x-rayed themselves. In experiments with *Drosophila melanogaster*, the

obliging fruit fly that has figured so importantly in genetic research, gene mutations have risen, under heavy x-ray bombardment, about 1,500% over the untreated germ cells, although the kind of artificial mutation which takes place has not been subject to definite control. Similar, though less frequent, results have been obtained from the gamma rays of radium.

The possibility that cosmic-ray bombardment may likewise shell genes into new arrangements was discussed by Charles C. Hurst of Cambridge University at the September sessions of the British Association: "Experiments demonstrate that mutations of genes and transmutations of chromosomes can be induced artificially by bombarding chromosomes with x-rays and other high-speed radiation. . . . although at present the different forms of high-speed radiations in nature, which might give rise to natural mutations and transmutations, have not yet been fully explored.

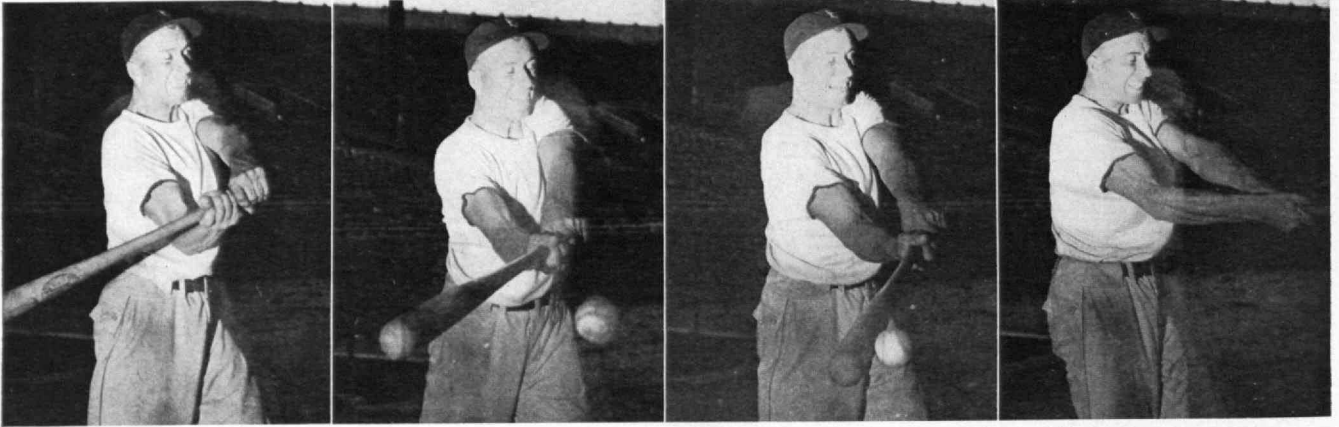
"Experimental induction of mutations and transmutations by man and replacement of natural selection by human selection in plants, animals, and man opens up a new field in experimental evolution which may change the destiny of the human race."

"The chief struggle for existence," suggests another Englishman, Professor Balfour-Browne, "seems to be

BAEDEKER

For this Section

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ON THE EVOLUTION FRONT. Geneticists resort to rays to explain, perhaps too simply, biological "sports," sudden mutations — thereby enlarging man's environment to include radiant energy. The cosmic-ray suggestion, which may beg the question	7
HURRICANE HASTENS CANAL. Or so the newspapers might headline an appropriation to begin another unit in a sheltered coast-wise route, Boston to the Gulf . . .	8
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Redeeming feature of an otherwise drab, disastrous season for the Boston Braves. An Edgerton high-speed photoanalysis series of centerfielder Berger's muscular phenomena (once before, twice during, and once after) which yielded him the League 1935 home-run crown

in the chromosomes which are perpetually endeavoring to maintain their normal constitution against agencies endeavoring to change them."

Intracoastal Canals

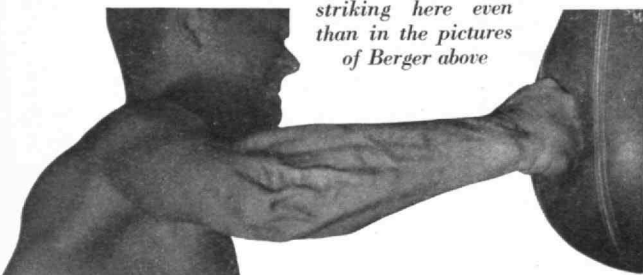
FROM George Washington through Roosevelt II, the Federal government has toyed with plans for a waterway affording vessels a sheltered life from Boston to the Gulf of Mexico. The recent plight of the S.S. *Dixie* evidently spurred Mr. Roosevelt to allot, against engineering advice, \$5,000,000 to start another unit — a canal across northern Florida — in this long cherished intracoastal waterway.

The major units in this route include the Cape Cod Canal (to be enlarged); New Jersey Canal, from New York harbor to Philadelphia via the Delaware River (proposed but frowned upon); Dismal Swamp Canal connecting Norfolk, Va., with the Cape Fear River and Wilmington, N. C. (completed four years ago, for barges and small boats only); and North Florida Canal.

The latter ditch, if ever completed, would cost \$146,000,000 or more, so Mr. Roosevelt's allotment will not make much of a scratch on Florida's back. Opponents who feel the project uneconomic and fear that it will salt the state's fresh-water supplies and endanger citrus fruits may, therefore, wait a long time to see themselves defeated.

The cross-state route, largest canal project since Panama, leaves the Atlantic at the mouth of the St. Johns River, passes by Jacksonville, turns south to Palatka, thence to a point near Port Inglis on the Gulf through the Oklawaha and Withlacoochee rivers.

High-speed photoanalysis of a boxer. Note the arm muscles, the facial contortion (which the eye normally does not see), more striking here even than in the pictures of Berger above



Meanwhile, in the south central portion of the Florida peninsula, wild Lake Okeechobee, America's largest and most obstreperous inland fresh-water lake south of the Great Lakes, is being tamed, not only to keep it within bounds when hurricanes scoop its waters over fertile shores, but to serve as a part of a minor waterway from the Atlantic to the Gulf.

Asbestos Cement in the Altogether

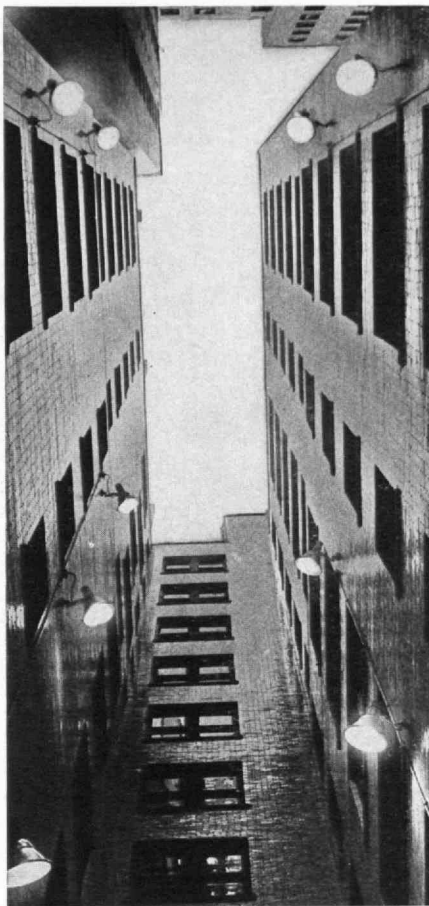
WITH its nearly perfect plasticity, the beauties, virtues, and practical advantages of concrete cast-in-place are amply recognized by the building profession. Similarly, the virtues of sheets of Portland cement made in the factory with asbestos aggregates are extensively utilized. Shingles of this material have been used in increasing volume from year to year ever since the eccentric Hatschek came to this country with his patented process for making them and started a long era of litigation and inventive competition. The native beauties of sheets or shingles as they come from the machines and presses, however, have been well-nigh ignored, and manufacturers have relied upon a variety of subterfuges to make their product meet the esthetic desires of builders.

The most notorious example of camouflage is imitation tile, made to look something like a ceramic and produced by applying first a white coat and then a colored lacquer coat to the virgin sheet, and further by routing out grooves through the lacquer to show the white in a similitude of mortar joints. But manufacturers also introduce special materials and press plates to produce wood grains that are naturally non-existent, trim their shingles to odd and uneconomical sizes, deliberately make a rough edge when the machine naturally cuts a smooth edge — all to give builders the rippling roofs to which they were accustomed with wood, ceramic tile, or quarry slate. Builders in turn accept this esthetic falsehood because nowhere else can they find a fireproof and durable roofing at so low a cost.

It is refreshing, therefore, to see in a recent venture by a leading asbestos-cement manufacturer, whose adopted anonymity is a thin cloak indeed, a serious attempt to find out how much longer a naturally beautiful product must go about sedulously aping other materials. To the outsider it appears most likely that the demonstration

of native beauty afforded by American Motor-homes' simple and straightforward use of the asbestos-cement sheet in its natural grey gave the impetus to this *au naturel* drive. Be that as it may, the company has created four houses in Boston suburbs, which utilize asbestos cement in a wide variety of forms, ranging from the camouflaged creations of the past to honest expressions of an honest material. On the outside one may see cedar shingles on the sides and roof of a Cape-Cod house, shingles with rough edges and butts of varying thicknesses, wood in all respects except that they are made of cement. These architects almost always like, though they deplore, such an inorganic use of materials. From shingles the material ventures into clapboards of a new, more flexible asbestos-cement sheet, in natural color, which can be nailed quite close to the edge. The next step in evolution is the use of fairly large panels on the exterior, these being colored integrally by methods known for some time. Finally, though in a house whose style is by no means well adapted for it, comes the use of a large sheet, eight feet by four feet, with slender vertical joints, a use in which asbestos cement stands unashamed in all its attractive grey-white nudity.

On the inside, unfortunately, camouflage rears its head with decalcomania-treated sheets which look like marble or Circassian walnut. Next, in bathrooms and kitchens are large square sheets of the material which have been colored and then covered with plate glass so that they closely resemble the increasingly popular glass tiles. Wall panels on interiors are almost universally of story height and the vertical joints are freely shown. In pretentious rooms they may



Science Service

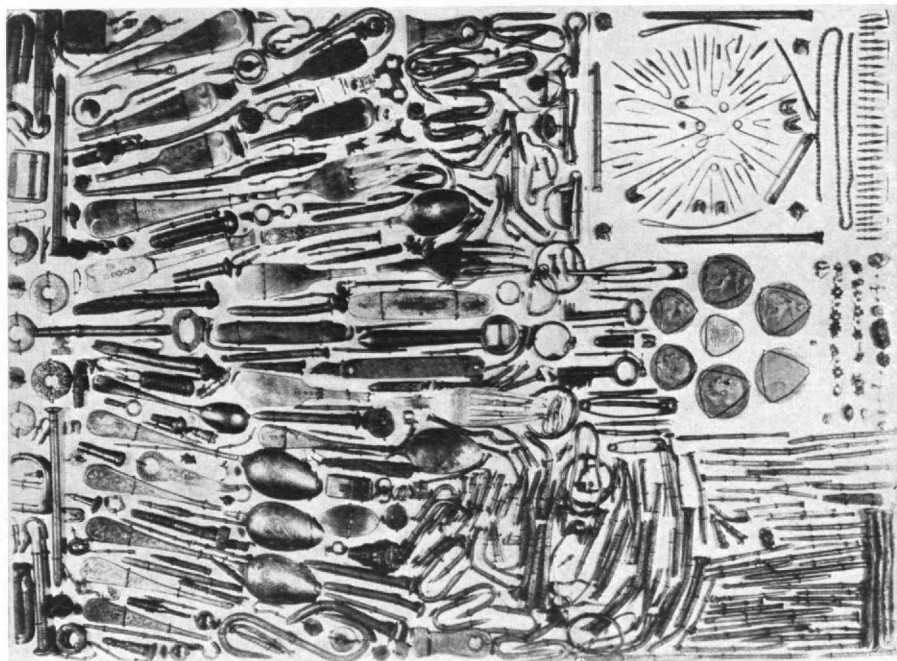
But what about those who lie asleep anorning? Looking up a ventilating shaft in a New York City apartment house where lights have been installed to simulate the radiance of the sun

be covered with wood veneers; in some they are grained to look like wood; in others they are covered with wall-paper or painted; and in still other rooms they stand on their own, there being no concession to texture and only one to color, in the integral coloring of the sheet.

Inasmuch as the corporation makes no statement as yet about either properties or costs of the new materials, the significance of the venture lies elsewhere. On the one hand, it shows a new vitality in the industry which has all too long peacefully followed the path of camouflage. Perhaps

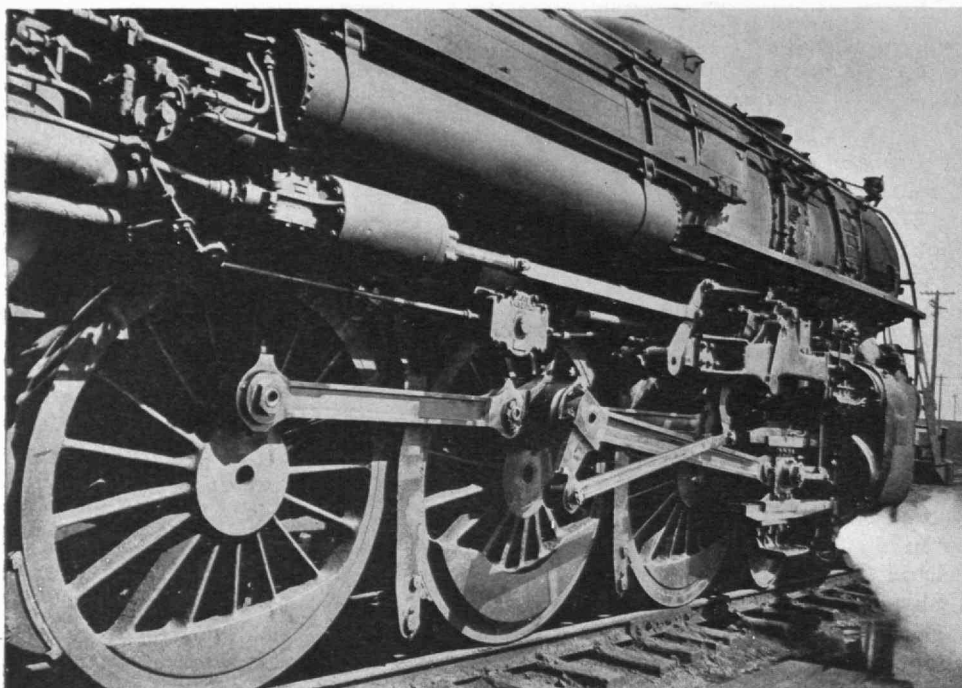
more important in the long run will be the nature of builders' reactions. If the designers are not willing to use honest materials in an honest way, there is really no reason to expect the manufacturer to cut his own throat by fighting the battle of esthetic candor.

Behind this use of the straight sheet lie many future possibilities. It has long been evident that wet materials offer little promise for building of the future. The long period of drying out and the waning craftsmanship on the plastering and stuccoing arts alike proclaim a day when such materials will not be accepted. According to many, the future rôle of concrete as a building material, except in foundations, has seemed to be in the form of thin sheets, whether of asbestos or other aggregate. The work of Thomas J. Earley, the well-known concrete mosaicist, in producing thin and beautiful slabs has confirmed this belief. The asbestos-cement industry on this basis would seem to be merely emerging from its infancy. While the possibilities of mosaics in factory-made sheets offer promise for the future, there seems no



Science Service

Perambulating hardware store. Not until an x-ray was made of his stomach was it known that a patient suffering from a mental disease had this collection of 500 foreign bodies inside him. The case was reported in the British Medical Journal. The patient died



Margaret Bourke-White

Diesels and streamlining notwithstanding, the majestic steam locomotive still renders yeoman service. As this issue appears, the New York Central's Twentieth Century Limited and the Pennsylvania's Broadway Limited, both steam-driven, New York-Chicago trains, are being speeded up 30 minutes, reducing the run to 16½ hours, an average, including stops, of 58.23 miles per hour for The Century. Meanwhile, on the Diesel front, the Santa Fe is completing tests on a 3,600-horsepower Diesel locomotive with the possibility of reducing the running time of The Chief, Chicago to Los Angeles, by half a day

reason why permanent pastel colors should not be produced by precipitation of metallic salts on the free lime of the product followed by subsequent exposure to a reducing agent. Thermoplastics might be combined with the sheet to furnish new and useful products of great beauty, if only the question of cost could be answered. Finally, recent results with asbestos-cement pipes indicate a future for such a material in this field, in a world that is air-conditioning minded but that is beginning to realize that condensation in ducts of thin metal may, in a short time, wreak havoc with a heating system that looked splendid when installed.

Gas Tactics in Ethiopia

AS everyone knows, the army of Ethiopia goes barefooted. Recent news dispatches tell of a powerful chemical agent or war gas, presumably something new, with which the Italian forces are equipped. This they can drop (if there is a war) from airplanes in such fashion that it will spread over the soil and linger there, attack the feet of the enemy soldiers, and put the Ethiopian army out of the running, as one might say. It may be so. But the story sounds like the bright idea of a partially informed parlor strategist who knows only a little about the properties of chemical agents and their effect upon humans, both colored and white. Moreover, the plan is by no means new, for there is a story in the Bible that Moses used similar, if more successful, tactics against the Egyptians.

Very few of the so-called war gases are gases at all. Some of them, in fact, are solids. The explosion of the shell or bomb converts the solid into a cloud of fine dust which spreads about, affecting those who breathe it, and, in the cases of certain of the agents, those who come in contact with it. Most of the war gases are liquids, somewhat volatile but generally with boiling points considerably above the boiling points of water. The vapors

of such liquids are heavier than air; they linger where they are put, unless it happens that the chemical material is decomposed or destroyed by the moisture which is always present in greater or less amount in the atmosphere or in the soil. The liquids, too, may be absorbed by the soil and produce, thereafter, dense vapors which linger on the surface for several days.

Mustard gas is a rather heavy liquid which has the tactical advantage that it remains for several days or a week, or even longer, on the terrain which has been shelled with it. Water decomposes it only slowly. But this advantage is also a disadvantage, for a terrain from which the enemy has been driven may not be occupied at once.

Mustard gas attacks the lungs and the mucous lining of the nose and throat, but its effect upon these parts may be prevented by the gas masks which are at present in use. It attacks the moist parts of perspiring soldiers, and this is the manner in which it is most successful. Barefoot soldiers would not twice traverse a terrain which had recently been shelled with mustard. At least, not barefoot white soldiers. Colored races, however, have a pigmented skin which makes the agent less effective against them. It is said that the concentration of the vapor must be several times as great to produce the same effect upon a negro as upon a white. During the World War negro troops were able to move with impunity through areas which had been gassed with mustard and were impossible for others. If one Ethiopian needs, say, ten times as much mustard gas as one Italian, or presumably ten times as much of any other chemical agent which might attack the feet, does it follow that one Ethiopian for purposes of defensive gas warfare is equivalent to ten Italians? A question not merely of algebra, but of logic. If an Ethiopian is n times as resistant as an Italian to war gases acting upon the feet, will it be possible in practice to maintain a sufficiently high concentration to affect him at all?

Perhaps Mussolini would do well to make use of the chemically prepared material, the "ashes of the furnace," which Moses found so efficacious against the Egyptians. It seems to have been adapted to the African complexion.

More technically valid, perhaps, are the reports of the Italian government's extraordinary measures to supply water to the expeditionary force in arid Africa. Great distillation plants on the seacoast have been constructed, we understand, to convert sea water into potable water.

Air Conditioning and the Water Supply

IT is estimated that 25% of the waterworks systems of the country are in serious need of new sources of supply. Many of them have resorted to conservation measures, placing restrictions on the use of water at certain periods of the year.

There are several definite reasons for the public's avid demand for more and more water. Professor James Holt, '19, of the Institute's Department of Mechanical Engineering, who is particularly well informed in this field, says that the enormous increase in domestic sanitary facilities causes much of the increased demand. The humble bathtub gave the waterworks engineer much to think about in its early days, but the modern shower bath, refreshing luxury that it is, puts the bathtub to shame in its appetite for water. The engineer has no quarrel with the man who surrenders himself to the somnolent caress of a tub of warm water. His habits and requirements are fairly well known. But the difference between three minutes and ten minutes under a modern shower in terms of a metropolitan area means an enormous difference in terms of consumption, as does the growing multiplicity of bathrooms in dwellings.

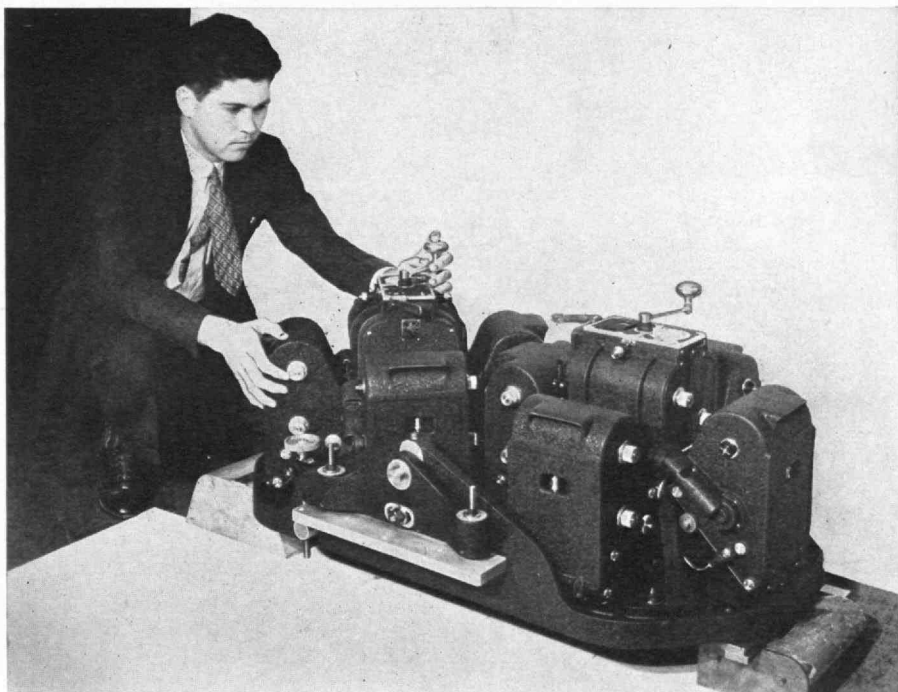
Of late the rapid spawning of air-conditioning and refrigerating machinery, the operation of which usually requires large supplies of water, has added a new burden to the water-supply engineer. In larger air-conditioning installations, such as those in theaters and public buildings, the problem has been solved to some degree by the use of cooling towers, which allow the water to be used over and over again with a loss by evaporation and other causes that seldom exceeds three percent. Others use storage tanks in which the water used for air conditioning is held for further use in sanitary systems, for sprinkling, and even for decorative fountains.

It is the future development of domestic air-conditioning equipment, however, which poses a new problem for the waterworks engineer and the manufacturer. At present, cooling towers are too expensive or impractical for instal-

lation in the average dwelling. Storage towers have obvious disadvantages, the normal domestic demands being far less than the requirements of present cooling systems.

As early as November, 1932, in an article published in these pages, Walter L. Fleisher anticipated this excessive demand for water. He estimated that under the very best systems of compressor refrigeration, steam ejector, or absorption systems, 1,200 to 3,000 gallons of water would be required for a cooling period of 10 hours per day. Thus, if domestic air conditioning becomes general, as it no doubt will in the future, some way must be found to attain comfort without drawing too heavily upon the public water supply. Meantime, a great deal of research is in progress and eventually the air conditioning engineer may be expected to produce economical and efficient equipment for domestic use, and, if his brother, the harassed waterworks engineer, is firm, he will find a way to do it with a minimum amount of water.

Aside from the domestic demand, variations in water consumption are closely allied to industrial activity, as a recent survey by Nicholas S. Hill, Jr., in the *Engineering News-Record* demonstrated. Because water is cheap and essential, domestic consumers economize only in the face of severe financial stringency. Mr. Hill's study reveals that, from 1926 to 1929, water consumption increased normally. In 1929, however, there was a sharp increase in both domestic and industrial demands. Consumption remained relatively stable during the following year and then began a downward course under the effects of depressive business conditions, but an increase in consumption in 1934 reflected the more favorable business activity of that year. The water-consumption index lags approximately a year behind the more sensitive barometers of industrial production.



Cyclopean eye. The world's largest aerial camera, which, with each click, photographs an area of 760 square miles. It has 10 lenses, weighs 275 pounds (its film, 70 pounds), was built by Fairchild Aerial Surveys and Aerial Camera Companies

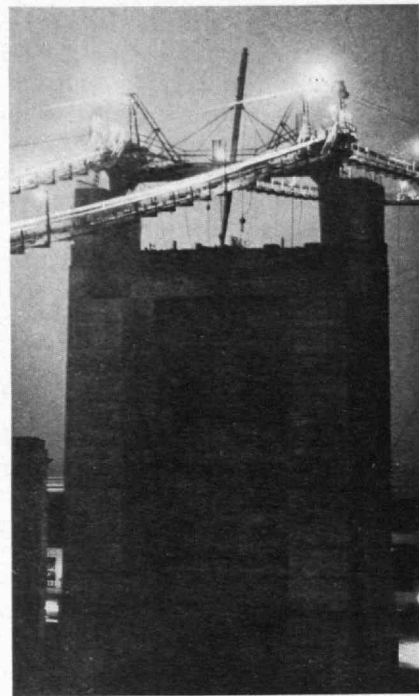
Science Service



U. S. Bureau of Reclamation

BELOW. Mono Craters Lake, whence trapped snow waters are conveyed from elevation 6,415 in the High Sierras through an 11 $\frac{1}{8}$ -mile tunnel, the only American bore driven directly under a volcano, downward some 340 miles to Los Angeles. It forms the latest appendage of the completely controlled and scientifically insured water sufficiency for that greatest of technically semi-desert cities, whose sudden rise to census prominence (113% growth in one decade) makes it ever thirstiest of modern communities

LEFT. Belt-conveyor paradise on the Columbia River at Grand Coulee Dam, where the time element and the enormous amount of material to be moved, together with the location of the "spoil-bank," demanded the world's largest installation. System used: A 60-inch wide belt (8-ply, 32-ounce canvas duck with 5/32-inch rubber cover), supplied by feeder lines, pushing 2,500 cubic yards per hour (1.2 tons per second) at a rate of 620 feet per minute up 350 to 550 feet to the rim of Rattlesnake Canyon at points $1\frac{1}{8}$ to $1\frac{5}{8}$ miles from the dam site. To keep abreast of the construction program, which calls for beginning the placement of concrete this month, excavation proceeds at the rate of 50,000 cubic yards a day



Engineers

Pictorial Excerpts from a Future

Explosives Engineer



LEFT. The 75-million dollar San Francisco-Oakland Bay Bridge, greatest aggregation of spans in modern times. Like strings of pearls, its light-studded catwalks are busy by night as well as day with workers spinning cables. The picture was made from the San Francisco side. Yerba Buena, pierced by a tunnel, is in the background. The bridge when finished is to be lighted with sodium vapor lamps

RIGHT. Like some huge battlement illuminated by night, TVA's Norris Dam towers above the Clinch River. Together with its sister structures, the Joe Wheeler, Pickwick Landing, Fowler's Bend, Chickamauga Creek, and Guntherville, it will bring co-ordinated power to the Tennessee Valley

Keystone

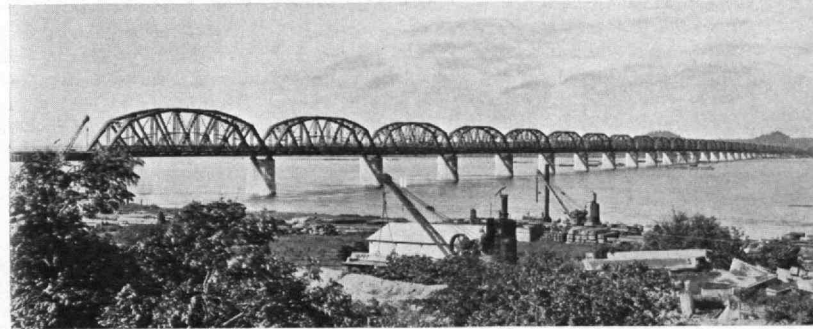
Keystone

In Action

History of Engineering Progress

BELOW. Brooklyn Bridge, without substantial improvement since its construction over a half century ago. It is now proposed to rebuild, retaining the present anchorages, towers, and main cables that give the bridge its distinctive character. The entire suspended structure would be replaced by one built of aluminum alloy thus permitting the installation of 12 ten-foot traffic lanes on two decks without increasing the dead load. Now commercial traffic, with the exception of mail trucks is barred, but on the new bridge unrestricted use even by 25-ton trucks would be possible

Chas. Phelps Cushing



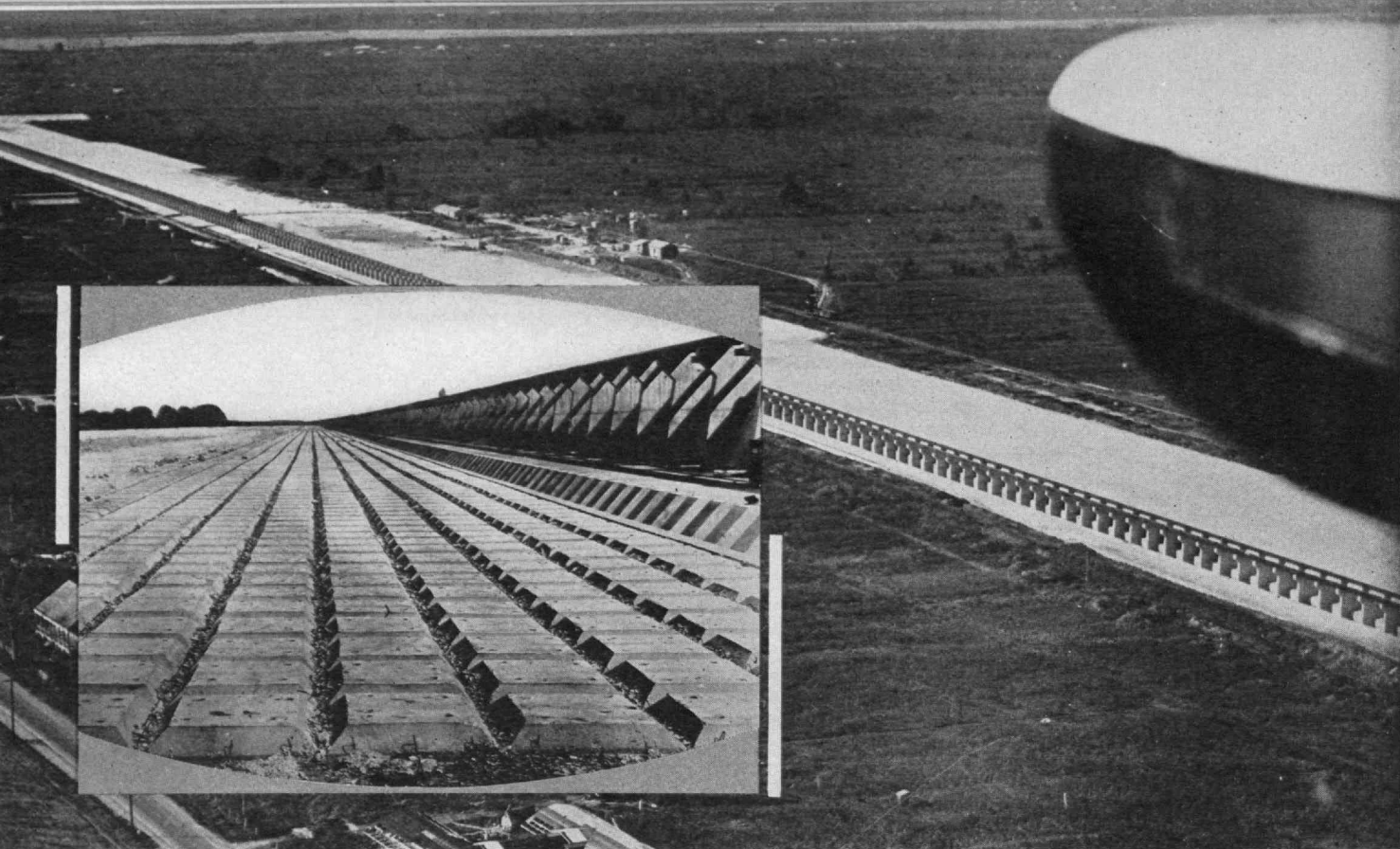
Cleveland Bridge and Engineering Company

ABOVE. Completed 12,064-foot Lower Zambesi Bridge, world's longest continuous over-water steel railway structure, which spans a river that width in the winter season. It closed the awaited rail link between the fertile Shire Highlands of Nyassaland, via existing lines of the narrow gauge Trans-Zambesian and Central African Railways, and Portuguese East Africa's Indian Ocean port of Beira. First proposed in a Portuguese concession granted the British Central Africa Company in 1912 and reconsidered in 1926, it was contracted for at a cost of nearly one-and-a-half millions sterling, and now stands completed. Tay and Forth railway bridges in Scotland are in length 10,527 feet and 8,300 feet; Upper Sone and Godvari in India are 10,052 feet and 9,096 feet; and Hell Gate is 13,553 feet, 10,818 feet of which, however, spans land, not water

BELOW. Catwalks again cross the East River. Construction proceeds on the Triborough highway span over the Hell Gate Channel to form a companion to the Hell Gate railway crossing

Science Service





Compressed Air Magazine

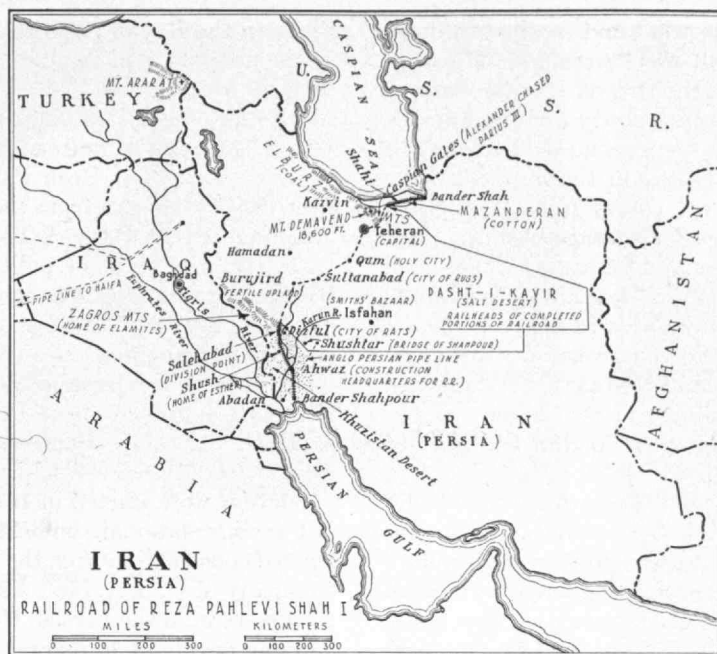
ABOVE. Bonnet Carré Spillway, attempted partial answer to the Mississippi's \$400,000,000 rampage of eight years ago. This 7,000-foot long masonry sill and concrete structure, supporting a movable needle dam, located upstream 38 miles from New Orleans, will help in times of flood to by-pass a great volume of water into Lake Pontchartrain and thence into the Gulf of Mexico. The inset shows a section of the reinforced concrete mat that is designed to prevent water passing over the spillway from exerting a scouring action. Since 1879, when the Mississippi River Commission was created, man has been interfering with the ordinarily leisurely, but at all times temperamental, flow of the river which, with its tributaries, drains an area of about 1,245,000 square miles within which the average annual rainfall is around 30 inches. No longer are levees depended upon entirely. Instead, backwater areas and floodways are provided to care for expansion during times of high water



Boulder Dam Reservoir, on July 22. With only five months' accumulation, it had outstripped Egypt's Assuan, the world's largest hand-made lake. Then 84 miles long and 76 feet deeper than Lake Erie, it was holding but a seventh of its final capacity. Field studies of the effect of pressure, due to the great depth of water in the reservoir, indicate that total spread of the canyon walls at the base of the dam will be of the order of one-fourth inch. Since the rock has much the same kind of elasticity as rubber, and since the application of a water load to the canyon walls counteracts the large horizontal compressive stresses in the rock at the canyon bottom due to the weight of the canyon walls, such spreading is expected to cause neither a crack under the dam nor undue tension in the rock of the canyon floor

U. S. Bureau of Reclamation





The Shah Builds a Railroad

Lifting Iran out of a Thousand-Year Depression

BY CHARLES HINCHMAN TOPPING

ACROSS Europe and the Mediterranean, Palestine, Syria, and Iraq, Imperial Airways planes had brought me from London and landed me at Basra at the head of the Persian Gulf. The plane had gone on to India; I had taken a Ford automobile a hundred miles inland to Ahwaz, the construction headquarters of Iran's new railroad, where I was to work for Mr. C. J. Carroll, administrator general of railways and chief engineer.

When I arrived in Ahwaz, the thermometer on the porch indicated 124° — near bursting, if the glass didn't soften first. I melted into a chair under the ceiling fan that churned the sand-laden air.

"Have you brought your overcoat?" asked the Chief. "Why?" "Well, this heat lasts only six months. In the winter we bury the water pipes to keep them from

WHY IRAN WANTS A RAILROAD —HOW REPEAL IN THE UNITED STATES INCREASED THE NEED FOR TRANSPORTATION IN IRAN—A DESERT OVER WHICH ALEXANDER THE GREAT SAILED—A 55-MILE ROOSTER WALK

freezing." Later I was to learn that thermometers and water pipes were not the only things that failed to hang together in this unmechanical country.

It was Friday, the Mohammedan weekly holiday. There was time to look at my bungalow. It was solidly built and fortified with battened shutters to keep out the furnace heat

that came howling out of the northwest desert on a 50-mile gale. Lunch (boiled chicken and cucumbers) at two o'clock (third meal of the daily five) was drying and heating on the table. Fresh bread, during the course of the meal, became as crisp and dry as toast. We slept on the roof under fine mesh sand-fly nets. I almost believed Marco Polo when he wrote that the inhabitants spend the day in water up to their chins in order to prevent the flesh from cracking off the bones.



Left: Cuts on the Iranian Railroad. Center: The author, who worked on southern portion of the railroad. Right: Station at Ahwaz

It was a week before the wind and sand went down enough to see the country. It was barren and flat except for a line of low, rocky hills running off into the haze on the other side of the river. The newly arrived wonders why Iran wants a railroad. He sees no evidence of the wealth that awaits development in the hinterland.

As a matter of fact, wool comes from throughout Iran, as do sheep intestines for sausage casings. (Prohibition note: The U. S. demand for sausages increased with repeal and the return of the "free lunch" enough to double the price of sheeps' innards in Iran.) Rugs are made in great quantities. Cotton grown in subtropical Mazanderan goes to Russia and Germany. Five hundred tons of legal opium contribute to the dreams of the world, and poppy seeds flavor the food of the Hindus. Gum tragacanth's curly, glassy blobs, collected from a mountain bush, are the base of many a drug shoved over the counter and paid for in dollars, pounds, and francs. Almonds, pistachios, walnuts, and tons of "antiqued" armor made in the smiths' bazaars of glamorous Isfahan are shipped to Sweden and elsewhere. Rice now going to Russia will be available for Europe, and we may hear of Iranian caviar.

The obvious necessity for transportation of goods and facilities for trade is intensified a hundred-fold by Iran's isolation beyond the formidable mountain barriers of her 4,000-foot plateau. The fertile northern section of the country is at the mercy of the Russian market, but an outlet to the Gulf, to the south and all the world, would change the tactics of the Soviet price fixers. The railroad should be independent of all neighboring countries' roads which might gain monopolistic control if they were so connected as to act as indispensable feeder lines. It is so independent. It should have protected, all-Iran ports, free from foreign operation agreements. It has.

The line, running north and south, connecting the Caspian Sea and the Persian Gulf, is shown on the accompanying map. The terminals are the ports Bander

Shah on the Bay of Asterabad, on the southeast corner of the Caspian, and Bander Shahpour on Khor Musa, a 30-mile long, natural, deep harbor opening into the north end of the Persian Gulf. Roughly, half the projected 775 miles of railroad has been completed.

When farsighted Reza Pahlevi Shah the First took over the government from the decadent Kajar Dynasty and mounted the Peacock Throne in 1925, he undertook to correct the state of political uproar and economic bankruptcy that has been more or less chronic throughout the misrule of the last millennium. He was more successful than perhaps any other man in that time. Able aid to the rehabilitation was the Millspaugh Finance Commission from the U. S. A. With it came a Railroad Advisory Board made up of Mr. W. B. Poland, '90, Mr. Carroll, and other experienced engineers.

Surveys were started in 1926 under their supervision, but an international syndicate took over the work and started construction from the two ends in 1928. Ulen and Company of U. S. A. built a section of 150 miles across the desert from the Persian Gulf to the mountains and a German firm built 45 miles across the fertile lowlands of the Caspian littoral, both of them working on a cost-plus basis. In 1931, Carroll, as Administrator General in the south, started with a dozen American engineers to equip and rebuild this line after disastrous floods and to push it 30 miles into the foothills. A staff of Swedish engineers in the north were engaged on similar work there. Engineers of both groups worked directly for the government on an individual contract salary basis. After the completion of the sections in 1933, a Danish firm contracted for the engineering on the balance of the line for about \$5.00 a meter.

At the present moment the first 150 miles in the south are in profitable operation and work is progressing slowly in two sections in the Zagros Mountains. In the north, the line is nearly complete as far as the pass of Firouz Kuh and construction on the remaining section to Teheran is being pushed with all haste.

Left: American engineers utilized a 1,600-year-old dam as foundation for this bridge across the Karun at Ahwaz. Below: Pol-i-Dokhtar (Bridge of the Daughter). Shahpour the First is often credited with the construction of this bridge in the Third Century for military purposes. The guard house on top is modern





Above: Pol-i-Dokhtar. Because of the scarcity of lumber, Iranian masons have developed the remarkable art of springing arches without forms. Right: Concrete pouring, Iranian style. Three hundred men pass buckets of concrete to build the machine shop at Ahwaz



The Khuzistan desert in the southwest used to be half its present size when the Gulf reached 60 miles north of its present shore line. The silt of five rivers, the Tigris, Euphrates, the Karun, and two whose waters are now lost in the sands, account for this aggraded flood plain. Two thousand years ago, Alexander the Great sailed his supporting navy over this desert from the Tigris-Euphrates to Ahwaz. He crossed the Karun River on the sandstone ledge now forming the head of navigation and the foundation of the three-quarter-mile long railroad bridge.

He had just come from Shush, world's oldest metropolis (now on the railroad but peopled only by historic ghosts and French archaeologists) where, 100 years before, young, Jewish Esther, with the help of her scheming uncle, Mordecai, won a beauty contest and became Ahasuerus' queen.

In those days a network of irrigation canals brought water from the rivers, and upper Khuzistan was a fertile garden. The railway crosses several of these old channels. Two cuts in the western hills look like giant rifle sights from one point on the line.

In 270 A.D. Shahpour captured the aged Roman Emperor, Valerian, and most of his army. The enslaved legions built for Shahpour a great bridge and barrage at Shushtar, which still stand after 15 centuries. The Iranis of that time learned from the Romans and built another barrage, which has almost completely disappeared, on the site of the railroad bridge at Ahwaz.

They dug *kanats* to bring underground waters to the surface and to carry them long distances, just as they do today. A line of wells is dug from a likely looking talus slope or fan at the mouth of a cañon, out to the spot at a lower level which it is desired to irrigate. The first few wells, or perhaps many of them, will collect ground water. The bottoms of these wells are connected by a drift to form a continuous conduit for the water, which, flowing along a gentler slope than the surface ground, eventually emerges on the surface and is used for

irrigation or domestic purposes. The wells may be 50 to 100 feet apart and up to several hundred feet deep, but usually less than 100 feet deep. All the labor is done by hand with the crudest of tools. Thousands of miles of these *kanats* exist. During the construction of the railroad all the water used at Salehabad division point on the southern section was brought by an old *kanat* 25 miles long. The science of building *kanats* is adequately described by M. A. Butler in *Civil Engineering* for February, 1933 (A.S.C.E.).

Iranis have an ancient saying that in the days of Shahpour the Great, a rooster could walk on the roofs of the houses from Ahwaz to Shushtar (55 miles)—an exaggeration, perhaps, but there is now no vestige of what must have inspired it, only dreary wastes of sand and gravel washes, with here and there traces of the larger canals and water works.

The end of Khuzistan's fertility came well over a thousand years ago with a progressively drying climate and the impregnation of the soil with the salts deposited by the evaporation of the undrained irrigation water. Perhaps these salts have now been leached out by the rains and Khuzistan might again be developed with the construction of modern irrigation works. Crops and the riot of wild flowers grown after occasional heavy winter rains indicate that the ground is now reasonably fertile.

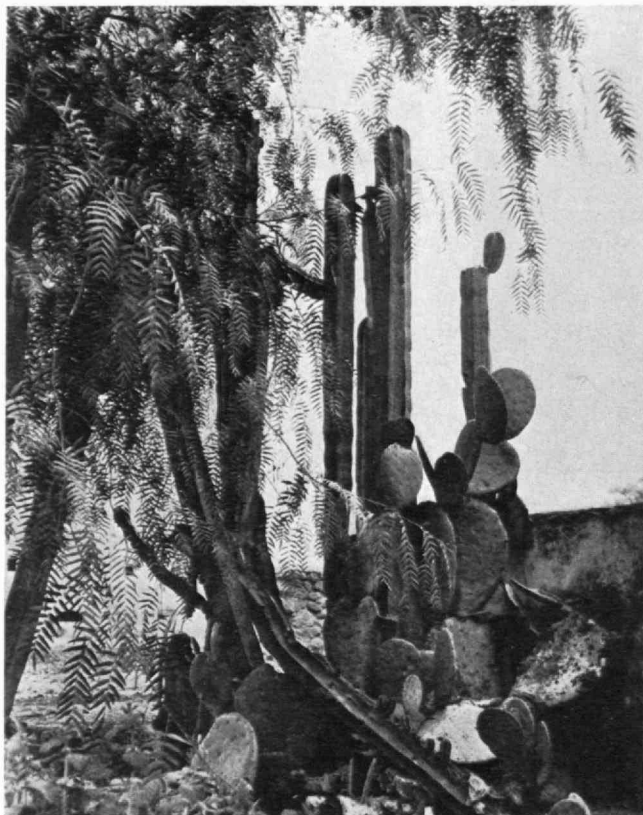
The railway's southern terminus is the above-mentioned Bander Shahpour, an artificial island, eight miles out on the 40-mile mud flats which are covered by the 18-foot tides. From the roof of my bungalow at the port, no land was visible at high water except this island, and the narrow track embankment coming in from the north. As the tide receded, the deep channels could be picked out and finally they were the only water visible in a dead world of slime and mud which extended as far as the eye could reach.

A peculiar but true fish, called the "goby," walks around on these flats during ebb tide. It has gills, but can breath air through its (Continued on page 26)

Other

How Can the Scientist Place Service of

BY ISAIAH



Frederick B. Wolf, '28

South of the Rio Grande

Above: A study in organic forms. Pepper tree, organ cactus, and nopal cactus, as they grow in the Valley of Mexico. Below: Volcano Popocatepetl over the City of Puebla, from the tower of the Church of San Francisco de Puebla



Alexander Piaget

ANYONE who stands before a graduating class at the Massachusetts Institute of Technology may assume that science needs no praise from him. He may also assume that you of "1935" have discovered in science a key to at least a part of the material world that seems ordered and rational in contrast to the "infinity of cause and effect" in social life that, over large areas of experience, still eludes analysis and understanding. You have also learned to give and take with your fellows. You have sought through technical training to fit yourself for a place in the world. Through that degree of self-mastery which rigorous mental training implies, you have learned the intangible as well as the tangible values of discipline without which no great work is ever done. The question I now wish to raise is the relation of your place as a citizen to the places of other men in neighborhood and state, for each one of us of necessity plays a double rôle: As individuals, we strive to discover what is within us, what we are good for; as members of society, what we can do with and for others. Will you consider with me the hypothesis that humane living always means the consideration of our welfare in relation to the welfare of other men?

It has been said that one of the greatest discoveries that man ever made was when he first entertained the hope of a possibility of indefinite progress through his own conscious efforts, efforts that were to alter so profoundly his relations to the earth and to other men. In that moment he was transformed from what in biology we call *benthos*, or sitters on the floor of the sea that wait for what they get, to *nekton*, those actively swimming creatures that go after what they want. In the realization of the possibility of progress, there are two main difficulties: First, universal reluctance to engage in thinking; and, second, instinctive opposition to a new idea based not on the experience of the past but on experiment in the future. Slosson once said that when a new idea is born into the world it starts with a handicap of a billion eight hundred million adverse votes. As the resistance of the air to a moving body varies as the square of the velocity, so the resistance to a new idea may be said to vary as the square of the novelty. The distinguished Benjamin Silliman opposed the general use of the strike-anywhere match because everyone might then set anyone's house on fire. Simon Newcomb figured out that a certain heavier-than-air machine could not fly; Wellington, that a steam engine could not haul more than its own weight. What would these men say of the astounding fact that in May, 1935, the United States Patent Office issued its 2,000,000th patent! This is incorrigible human curiosity and the spur of profit raised perhaps not to the *n*th power but at least

Men

*His Gifts and Training at the the State?**

BOWMAN

soaring rapidly toward that distant goal. The human mind persists in devising new things in spite of the difficulties of getting them adopted and in spite of the worthlessness of most of them. If this is the fate of patents on material or mechanical things, perhaps the world's instinctive resistance to social and economic experimentation is justified, for there is potential damage on a vast scale in the latter case, not merely the failure of an individual to make profit out of an invention that won't work.

As a geographer, enjoying wide latitude, may I quote from two printed statements that illustrate the hard time man has had with his own kind, as well as with physical nature, in trying to realize that "hope of a possibility" of which I have spoken, in trying to pass from *benthos* to *nekton*, in trying to turn the flank of superstition, in holding the balance between tradition and experiment?

Testifying before a Select Committee of the House of Commons in 1879, a witness commented on the extravagant expenditures of the London School Board as follows:

"Geography, sir, is ruinous in its effects on the lower classes. Reading, writing, and arithmetic are comparatively safe, but geography invariably leads to revolution.

"Physiology, besides being costly and useless, is an immodest subject. When the Author of the Universe hid the liver of man out of sight He did not want frail human creatures to see how He had done it.

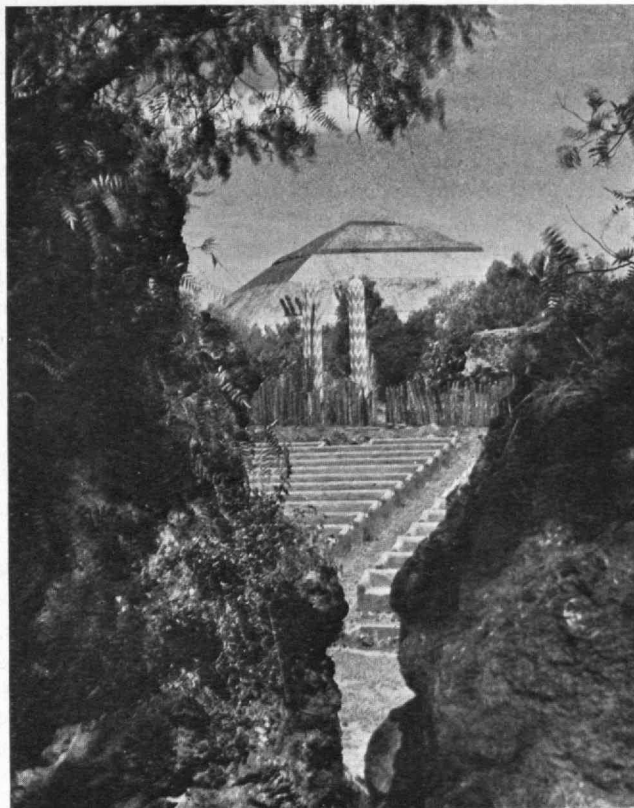
"The whole effect, sir, of extra subjects is to diminish the fierce virtues of an ancient people."

In the records of an Ohio school board in the year 1828 there is an account of a proposed debate as to whether or not railroads were practicable. Permission was asked to hold the debate in the school house and the minutes of the school board follow:

"You are welcome to use the schoolroom to debate all proper questions in, but such things as railroads and telegraphs are impossibilities and rank infidelity. There is nothing in the word of God about them. If God had designed that His intelligent creatures should travel at the frightful speed of 15 miles an hour by steam, he would have foretold it through His Holy prophets. It is a device of Satan to lead immortal souls down to hell."

The Scopes trial at Dayton, Tenn., a few years ago, was good for scientists in one especially important respect: It made them aware that they have also to be interested citizens or in time there may be no science. This is not a turning to citizenship for recreation or diversion but from sheer necessity. Take science out of our present civilization and the structure collapses. And

* Commencement address delivered last June at the 68th Graduation Exercises of the Massachusetts Institute of Technology.

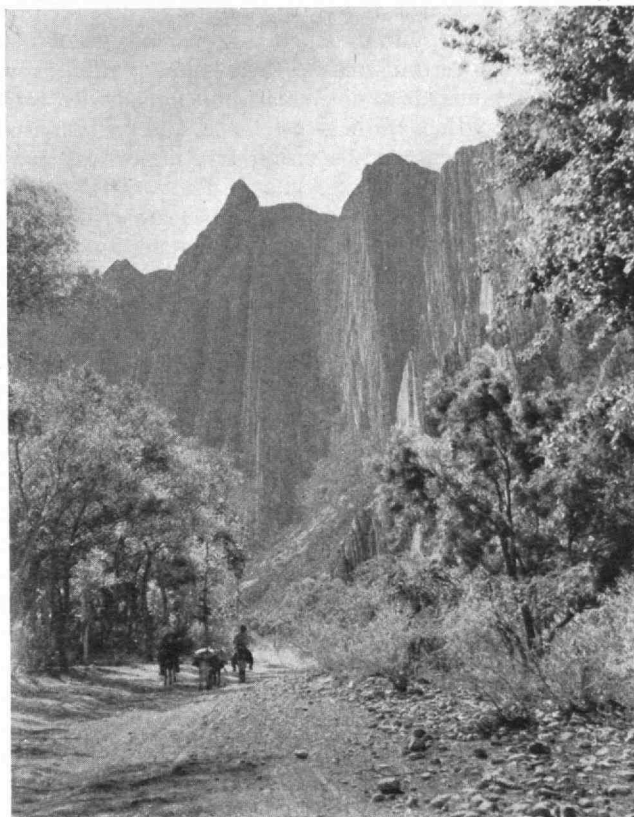


Alexander Ploger

Mexican Vistas

Above: Pyramid of the Sun at San Juan, Teotihuacán, Mexico, a monument to pre-Mayan engineering. Five pyramidal bodies form this structure, 330 feet high, and a stairway gives access to the top. Below: Huasteca Cañon (near Monterrey) walled with towering vertical sedimentary strata. The scenery and architecture of Mexico are just beginning to draw the attention they deserve

Frederick B. Wolf, '28



science today, it should be remembered, means not merely the physical and biological (including medical) sciences, but also the social sciences — modern economics, sociology, statistics, and related subjects — that we now seek to develop in a way as nearly objective and experimental as the nature of the human materials and the available techniques of investigation permit. In our time the highest hope of social advancement is based on a reasoned relationship of man to man, not a haphazard relationship. We have come to believe that the affairs of man are not subject to a malign fatalism as he goes forward in his “dark striving toward the good.” Science is in relentless pursuit of power to diminish the darkness of that striving and to “shape reality from hope’s vast dream.”

In the effort to achieve reasoned relationships there are two great blocks of humanity that still call to each other across a deep gulf: the specialists who discover truth and the masses that accept or reject what the specialist discovers. How to bring these two into understanding relationship is a problem of gargantuan size today in a country as large as ours and in a society now grown complex beyond the knowledge or even the imaginings of those held within its intricately interwoven strands. Is the science of the specialist an adventure of the intellect only? Is it not also a profound matter of active citizenship? If citizenship claims your loyalty also, if without it your science dies, is it vital that you ask what are the channels and what the forces that effectively put your gifts and your training at the service of the state? The answer is not a formula; it is an individual and personal answer, unique for every man.

A year ago I visited the town of Toruń on the lower Vistula River in Poland and saw the walls and towers, now centuries old, that once protected the city. Each part of the wall, each tower, was built and defended by one of the citizen guilds, coöperative associations of men who agreed to certain rules of their trade or profession, raised the standards of craftsmanship, joined with each other to strengthen trade and defense, and participated in city government with a visible and important share in maintaining the public welfare. The word “guild” means “to pay” — each guild member subscribed to a common fund and got in return the advantages of association. In sickness, or in time of disaster, brother helped brother. In some countries a guild had a patron saint with a separate altar over which stood an image of the saint, before which a light was kept burning continually. The repair of bridges and roads, of walls and gates of fortified towns, was often undertaken by the guilds. In old Nürnberg the 100-foot protective ditch about the town took 26 years to build and all householders, male and female, together with their servants, had to help in the digging one day in the year. “There were no exemptions . . . whether in favour of councilor, official, or lady.” A citizen freeman found himself called upon by his business, his trade, or his profession to become part of a defense organization in time of peace. In time of attack he knew where to go and what to do immediately. Each man had a definite place and part.

What an inspiring thing it must have been to share in the building of the wall that protects *your* city, *your* guild, and *your* home! Government in such a place and

time was not a thing of lobbies, a remote agency, a vague power for good or evil, a gatherer of taxes and maker of regulations merely, but an immediate, near, and vital matter involving your own right arm, your life, and your welfare. When the attacks of the Knights of the Teutonic Order were directed at his city, when the cannon thundered from the opposite bank of the Vistula, the native of Toruń did not look around in panic for help from a distance, but went to his place on the wall and did what he could as a citizen-soldier, standing armed with musket, pike, or bow as it were before his own doorway. We do not wonder that in those days a man boasted of his city rather than of his country. The latter was an abstraction, for he could not look down upon it as from a hill or a tower; the former was a visible home and the work of his hands in coöperation with his fellows.

On my return through England I visited Southampton and there also stood upon a portion of its ruined wall. One day in 1337, 50 French galleys suddenly appeared before the town, and sacked it. Says the chronicler: “After this the inhabitants of the town encompassed it about with a great and strong wall.” To prevent a recurrence of the disaster, each guild did its part. Organized defense was once more established. In such a town one was not merely a tailor, a merchant, a silversmith, a lace-maker or a carpenter, but a member of a guild of his own kind, a builder often directly of his own guild tower or a part of the city wall, a defender of his own city, business, and home, and a sharer with his neighbor of a freeman’s rights and responsibilities.

What would have been said of a guild member who ran out on his fellows, who said in time of danger, “I will go about my business and leave to you the defense of the wall”? In those days a freeman was in almost visible bondage to other freemen. Whatever the differences of citizen opinion as to internal affairs, the city must be safe. This is patriotism, direct and personal, like the patriotism of the freemen who gathered here in America in town meeting or that type of citizenship which led to a man signing articles of agreement and joining with his fellows under resourceful leaders to migrate into the new lands of the continent. If the men of a neighborhood near which we stand today mistakenly expelled Roger Williams, at least they thought they were saving something else more valuable, and perhaps they were. This something was organized society within a new type of commonwealth made possible by coöperation within the group, voluntary if possible, compulsory if there were no other way. The curse of the community was hard, but it was conceived as community protection. Their view was that the welfare of the community was a better thing than individual liberty. “The town records of the Seventeenth Century are full of votes limiting individual freedom.” One could not claim the privileges and deny the responsibilities. If you want freedom from the bondage of the group, take it, but take also the servitudes that paradoxically go with freedom. This is the concept of “creative freedom” as Smuts has phrased it.

Privilege and penalty in a medieval town have their counterparts in our own society and age. This business of defending the wall (*Continued on page 31*)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Glimpsing the Goal in Architecture

TECHNOLOGY long ago introduced the very successful laboratory method of instruction in science and engineering, bringing students face to face with the problems of their professions early in the period of their technical education. This year the Department of Architecture is offering its first-year students a course in which the realities of architectural practice will be illustrated in the actual design and construction of domestic buildings.

This innovation was decided upon only after long study and consultation with leading architects and members of the Advisory Committee of the School of Architecture. The plan has been approved by the Institute's Corporation, and goes into effect at the opening of the academic year.

The work will include the selecting and purchasing of a suitable lot, making plans and specifications for a moderate-sized house, selecting a building contractor, and supervising every step of construction. The plan will be carried out with the constant assistance and supervision of the Faculty, and the completed house will be sold, the proceeds to be used to purchase a new location and to finance the building of another house for a following class.

During the first few weeks of the opening term, the class will become familiar with various phases of architectural office practice, and later will make a study of the proposed location, taking into consideration such economic and social factors as transportation, real estate values, taxes, mortgages, deeds, building laws, surveying, and methods of financing. An important feature of the course will be a series of lectures by outstanding authorities in many fields relating to domestic architecture. The work will be further supplemented by individual research and visits to various types of residences.

At the beginning of the second term, the students will prepare preliminary scale sketches for a house to be erected on the chosen lot. This sketch problem exercise will be developed into a final problem, and the best design chosen as a basis for the house to be built by the class.

From that point on, the course will parallel still further the office practice of an architect. Working drawings and specifications will be prepared for the final estimate, bids obtained, and the contract let. The house will be started, and the actual construction followed by the class in every detail. Studies of interior color schemes and landscape treatment of the grounds will complete the project. The house and lot will then be turned over to the Institute authorities for sale.

The plan is expected to do much toward stimulating the beginning student's imagination and interest, and to give him a grasp of the many varied aspects of archi-

ture. Through the actual design and building of a home, the course aims to give reality to architectural education and to emphasize the primary function of the architect, that of creating a design for a building which can be built.

New Light on Light

UNTIL very recently measurements of light followed methods developed more than 200 years ago by M. Bouguer, a French investigator, who in 1729 compared the intensity of illumination from two sources by means of the eye. A further advance came in 1880, when W. S. Langley developed what he called the direct-current bolometer or radiation meter. Still later came the development of the thermocouple, which practically superseded the bolometer followed, in turn, by the versatile photoelectric cell. While these instruments were useful for many purposes, all had limitations and none permitted the precise objective measurements of light demanded in modern scientific procedure.

The urgent need for a precise method of measurement prompted Professor Parry H. Moon, '27, who is in charge of the Institute's course in illuminating engineering, to study the problem. His investigation convinced him that an alternating-current bolometer would give more accurate measurements than any existing instrument. The theory of the new instrument was then worked out and with the aid of W. R. Millis, Jr., one of his students, Professor Moon constructed a device which eliminates serious engineering difficulties in the measurement of light.

While Moon's alternating-current bolometer is so sensitive that it will accurately measure the light of a distant star, it was designed for the more practical purpose of research on various forms of lamps and light in the very promising field of illumination. It will be particularly valuable for fast and accurate measurements of the candle power of lamps and it may be used for measurements of solar radiation.

The Moon bolometer looks like the ordinary vacuum tube of a radio set. Inside the tube is a small piece of blackened metal, known as the target. When light falls on this target, it is heated by the heat rays absorbed in the blackened surface. This heating changes the delicate electric current that is passing through the circuit. The amount of the change is then readily measured by means of an alternating-current amplifier, such as is used in radio sets, an instrument which has been brought to a high degree of perfection.

The new bolometer overcomes serious practical difficulties. Measurements of this sort are of very small voltages, so that high-sensitivity galvanometers formerly had to be used. These demanded complicated laboratory technique. In addition, with the old devices there were slight differences in the temperatures of

any two metals connected in the circuit, and false currents were set up. Such currents had nothing at all to do with the current to be measured, but attached themselves like parasites to the true current, the measurement of which was desired.

The Moon bolometer operates without the troublesome high-sensitivity galvanometer, and gets rid altogether of the parasite current which, with the direct-current devices, confused the record. The new device now provides a physical basis to replace the older methods which relied on human observation for light comparisons.

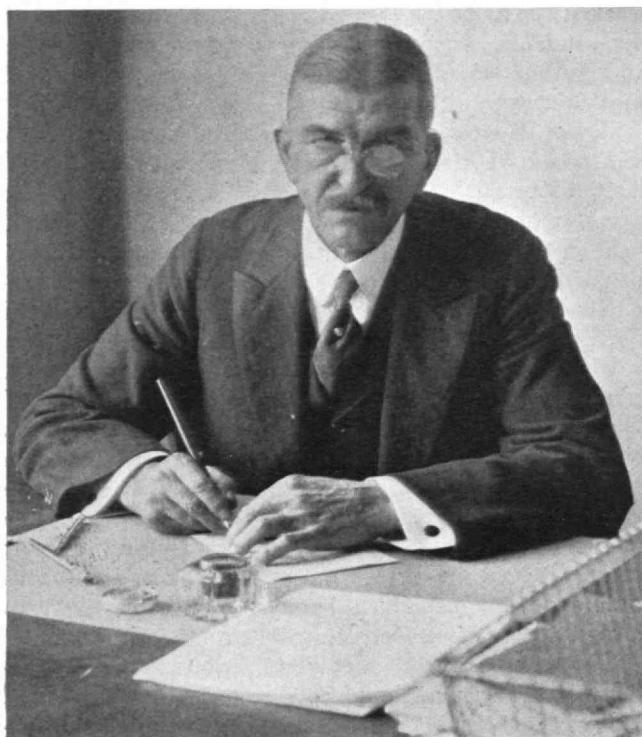
The Late Messrs. Little and Litchfield

WHEN Arthur D. Little, '85, died on August 1 and his classmate and close friend, Isaac W. Litchfield, on June 24 preceding, *The Review* lost, respectively, one of its founders and its fourth editor. Aside from their contributions to the community and to the Institute, *The Review*, then, has reasons all its own for paying tribute to these two distinguished Alumni, beloved by Technology men.

ARTHUR D. LITTLE, 1863-1935

By RAYMOND S. STEVENS, '17

ARTHUR DEHON LITTLE'S relations with the Institute of Technology furnish an excellent mirror for the man whose deft and human touch enabled him to accomplish so much in one lifetime. Known to the public as a scientist, his contributions in such diverse fields as paper, leather, cellulose acetate, and petroleum chemistry were never the conceptions of a solitary impersonal searcher. In each instance there was intense



Isaac W. Litchfield, '85, whose death this summer, followed by Arthur D. Little's, robbed the class of which he was Secretary of two of its most distinguished members

activity with his vision, courage, and sustained industry leading others along to the new accomplishment. Often the actual discovery was his, but on countless occasions his broad vision and his infectious inspiration gave the necessary impetus though the actual deed was another's. Those closest to him had rather see his record rest on the enormously greater list of advances in many fields for which he was responsible through inspiration and leadership than on the lesser number of specific inventions for which he is officially credited in the various volumes of biographical reference. Even in those instances, his brilliant and dominant personality was an essential, direct factor.

From the time he established his consulting laboratory in 1886 at the very start of his career, Dr. Little was an active participant in Technology affairs as an alumnus who felt that the broad purposes for which the Institute was founded were worthy of his time and his best effort, and he gave them unstintingly. He was a classmate and intimate of the late Everett Morss, Treasurer of the Corporation for 11 years, and of the incomparable Ike Litchfield and others who made the great Class of 1885 the backlog of alumni activity and aid to the sound growth of the Institute. The meetings of his class were memorable occasions and no place for narrow shop talk, nor should the unseeded raconteur expect success against such competition as they provided.

As an undergraduate, Dr. Little had been one of the first editors of *The Tech*. A few years later, with his partner in the consulting-chemist's field, Roger B. Griffin, he wrote "The Chemistry of Paper Making," which for some 30 years was the one outstanding technical authority in the industry. A steady stream of writing followed under increasing pressure as his unusual talent for expression became more widely known. He came to be recognized as a spokesman for his profession, and it is fitting that one of his best known addresses is "The Fifth Estate," delivered at the centenary celebration of the Franklin Institute, in which he presented a creed for scientists. To his insistence on that and countless other occasions and to his own unvarying example, the chemical profession in particular owes no inconsiderable part of the recognition and standing now accorded it. In his writings, as in his life, rare dignity and grace lent respect and charm and spread his influence in constantly widening circles.

It was natural that with such qualifications he should be chosen to high office in the numerous organizations with which he was connected. He was President of the Alumni Association of the M.I.T., President of both the American Chemical Society and the American Institute of Chemical Engineers, and one of the few Americans to be President of the Society of Chemical Industry (London). He served at various times on many committees and boards of city, state, and national scope. With all this extracurricular activity, he was never one to take his responsibility lightly nor to do anything casually. It fell to him during his presidential term to initiate complete reorganization of the American Chemical Society and with the Institute of Chemical Engineers to survey the whole field of chemical-engineering curricula in America in order that this important

branch of technical education might be strengthened. Similarly, he contributed new life to many another purposeful group.

The various degrees and scientific honors he received came through recognition by leaders who had followed his career and knew well the nature and extent of his intellectual contribution and leadership. The citation by President Nicholas Murray Butler of Columbia on one such occasion was especially fortunate. As one of the best brief statements of his place in life, it will bear repeating here: "Arthur Dehon Little, Chemical Engineer, Native of Massachusetts; a captain in the organization and direction of research in the science of chemistry in all its manifold revelations covering, in his field of interest and influence, almost every aspect of chemical engineering practice; fertile in invention, practical in application, and a genuine leader in the preservation and advancement of that organized body of knowledge which we know as science; one who, as even Sir Humphrey Davey would admit, pursues science with true dignity."

The University of Pittsburgh, Tufts College, and the University of Manchester (England) had honored him in similar fashion and he received the Perkin Medal in 1931 as "the American Chemist who has most distinguished himself by his services to applied chemistry."

Dr. Little was always interested in scientific education, and always a proponent of a broad and even cultural foundation as opposed to the trade-school extreme. His close personal friendship with several presidents of Technology enabled him to exert appreciable influence on the broadening and strengthening of the Institute's standards, especially at certain rather critical stages. To him the School of Chemical Engineering Practice at the Institute owes its existence and through his presentation of the opportunity to Mr. Eastman, the school obtained its first endowment. His interest in education and willingness to give his time extended to the young student and recent graduate, and all through his life they came to him and received help, guidance, and inspiration.

That, by provision in his will,* Dr. Little should benefit the Institute yet further and bring closer to it the industrial research organization he created could

*Dr. Little left his entire estate to his widow, Henrietta Little of Brookline, with the exception of his controlling interest in Arthur D. Little, Inc., pioneer industrial research firm of Cambridge, which he directed to be held in trust for the benefit of the Institute.

His widow and M.I.T. share in the income from the stock held by the trust, with the ownership of the controlling interest in Arthur D. Little, Inc., ultimately going to M.I.T. The trustees, Royal Little of Providence, R. I., nephew of Dr. Little, Francis R. Hart, '89, President of the United Fruit Company, and Horace S. Ford, Treasurer of the Institute, are directed by the will to develop with M.I.T. a plan whereby Arthur D. Little, Inc., may be administered to insure its continuance as an independent agency for benefiting industry and to benefit M.I.T.



Arthur D. Little, '85, who died on August 1 and who, as recorded below, left a generous bequest to Technology. The Class of '85, which celebrated its 50th anniversary in June, lost, this summer, not only Messrs. Little and Litchfield but also Frederick Fox, Tracy Lyon, James Means, S. Cuyler Greene, and Arthur I. Plaisted

be no surprise to those who knew his main life interests — his desire to further the advance of applied science and particularly to aid in the establishment of a profession of applied scientists properly qualified for the great opportunity he visioned.

ISAAC WHITE LITCHFIELD, 1861-1935

By H. E. LOBDELL, '17

SAVE classes of the latest decade, there is hardly an alumnus of Technology who did not know Isaac White Litchfield, for 30 years Secretary of the Class of 1885, who died suddenly on June 24 at Quincy, Mass., aged 73. As Professor Robert E. Rogers, for many years his associate on *The Review*, fittingly wrote in the *Boston American*: "Technology men knew him everywhere and always as 'Ike.' He was met and addressed in this manner by people, who, to his knowledge, he had never seen before."

To the older Alumni he was the man who came back to Boylston Street from Chicago at the turn of the century to revitalize the Alumni Association; who was Managing Editor of *The Review* from 1908 to 1917; who was Editor of *Science Conspectus*; who was prime mover in the Association of Class Secretaries and in starting the Alumni Council; and the man who played a leading

In commenting on the bequest, President Compton said: "The Massachusetts Institute of Technology, through the generosity of Dr. Little, is to participate in the ownership of Arthur D. Little, Inc., the oldest organization in this country devoted to industrial research for the benefit of clients. This company absorbed Dr. Little's best energies for nearly 50 years. Its beginnings go back to a time, as Dr. Little has noted, when there was no appreciation of the place of science in industry, and for many years it was a pioneer. The Institute, whose holding in the company will be regarded as on the same basis as the securities of other companies in its investment portfolio, will cooperate in every way in maintaining the company's independent service to industry in the same manner and spirit that Dr. Little directed it."

— THE EDITOR.

rôle in the stirring march of events during the early 1900's when the continuance of the Institute as a separate entity swayed precariously in the balance.

They also knew him, as did the not-so-old Alumni whose classes are now year by year celebrating their quarter-century anniversaries, as the man who wrote "Take Me Back to Tech," as the Field Secretary of the Alumni Association who traveled far and wide to take to distant graduates news of the New Technology which Maclaurin was forging with the backing of the mysterious "Mr. Smith," as the man who helped secure funds for Walker Memorial, and as the man who staged the All-Technology Reunions every five years.

It was at the Dedication Reunion in 1916 when all came most to appreciate the deepness of his affection for the Institute, and his inventive genius which enabled him to translate his expression of that affection to others. This celebration to mark the transfer from Boston to the New Technology on the Charles involved



Presentation of the "greatest of American aviation awards," the Collier Trophy, to Captain Albert E. Hegenberger, '17, for his development of the blind-landing system used by Army fliers. Captain Hegenberger had formerly received the Distinguished Flying Cross

the efforts and keenest interest of a great many Technology men. For President Maclaurin it was an especial time of triumph, and in his success there joined jubilant thousands of loyal Tech men, both those attending in person and those connected with the Banquet Hall by a pioneer demonstration of the new transcontinental telephone system. Other friends and well wishers of the Institute took part. The mysterious "Mr. Smith," later to be revealed as George Eastman, "listened in"; Edison, Bell, and others spoke. Significant also, in that the celebration marked in a very definite sense the Institute's coming of age, was the presence of men high at the time, destined later to rank even higher, in the affairs of the Republic — Henry Cabot Lodge; Calvin Coolidge, Lieutenant Governor of the Commonwealth; and Franklin Roosevelt, Assistant Secretary of the Navy. But to those "in the know," the personality behind this celebration of the dedication of the New Technology, with its pageant, its telephone dinner, its *Bucentaur* barge, its commemorative medal, its naval display, its exhibits, and its farewell to Rogers' steps was that of Ike Litchfield.

He came of old New England ancestry, his father being a Baptist clergyman, the Reverend Daniel Clapp

Litchfield, whose line went back to Lawrence Litchfield who bore arms in Barnstable, Mass., in 1643. His mother, to whom he was fondly devoted during long years when she was sadly crippled by deforming arthritis, was born in Maine, a descendant of Peregrine White of the Mayflower Company. Ike, himself, was born in Oldtown, Maine, on September 4, 1861, but, while still an infant, was taken to North Andover. Later, in 1874, his family removed to Warwick, N. Y., and it was from the local high school there that he came to the Institute in the autumn of 1881, matriculating as a freshman in the course in Mechanical Engineering.

Soon after entrance he, together with several classmates, including the late Dr. Arthur D. Little, took an active interest in the proposal to establish a student newspaper or magazine. Upperclassmen were not disposed to consult the freshmen about this but the power of numbers and the spirit of the new class forced a revision of their plans. Thus with Litchfield as Treasurer, and Little as a member of the Board of Editors — Volume I, Number 1 — *The Tech* appeared on November 16, 1881. There is some evidence that prior to admission Ike may have been aware of the fascination of publishing, but it seems quite certain that on *The Tech* his fingers first became really smudged with printer's ink.

After a freshman year, successful academically and otherwise, he transferred to the new course in Physics, VIII-B. Meanwhile, extracurricular matters, especially *The Tech* and perhaps the VL Club (a secret dining club whose name many years later was confidentially revealed as meaning "V", or \$5, limit for weekly board), occupied his attention and the early Faculty took notice of the situation.

They were for the most part unsympathetic toward the conduct of student activities, certainly if at the expense of class work, and Ike, who had in his first year amply demonstrated that he had the ability and aptitude for the Institute's academic exercises, became involved in what may be termed a difference of opinion with certain influential professors. This is mentioned here because the records also show that he was able to persuade them to modify their demands so as to permit him to continue to get out *The Tech*.

In the fall of 1884, however, he decided not to return to finish his course, finances having a good deal to do with that decision. It is a curious fact that the final notation on his record in the archives of the Registrar reads: "Must obtain credit in calculus." Possibly this is what inspired the line: "I'm crazy after calculus, I never had enough . . . It was hard to be dragged away so young, it was horribly, awfully tough."

Between the time he left the Institute as a student and his return to Boston some 20 years later to reconstruct the Alumni Association, he was associated with George F. Ketchum on the *Warwick Valley Dispatch*, a weekly newspaper which they founded and which is still published. He also built a telephone and telegraph line from Warwick to Monroe, N. Y. In 1893, he went to Chicago with G. F. Steele, '85, who was in charge of purchasing for the Deering Harvester Company. Later he was transferred to the experimental department and continued there until he became general manager of the Acme Harvester Company at Peoria, Ill.

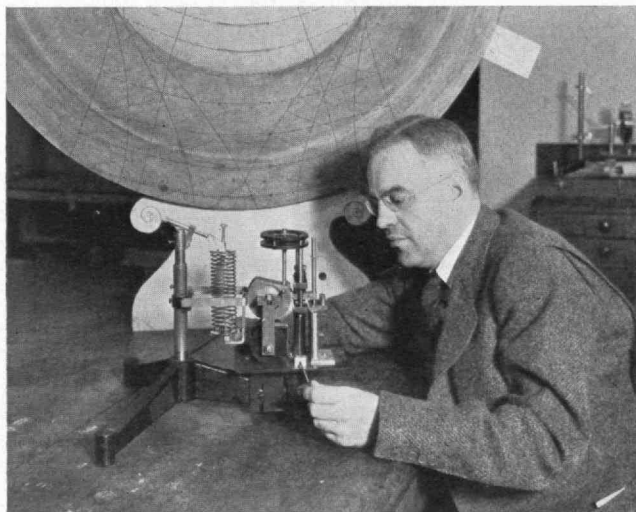
About 1903 he came east to Boston at the request of the late Oakes Ames, '85, then President of the Lamson Stores Service Company. At this point, his active service with the Alumni Association began and continued until he was appointed, at the beginning of the World War, a director of the United States Public Service Reserve Board of the Department of Labor. Following the War, he joined with the late Coleman du Pont, '84, and Merton L. Emerson, '04, in the raising of the Educational Endowment Fund.

Much has been written of Ike Litchfield in various Technology publications and elsewhere, and many tributes have been paid his memory since last June, but the comment of The Review when he entered the government service at the outbreak of the War well describes his work for the Institute: "Mr. Litchfield . . . employed without stint so fine and contagious an enthusiasm, so wide and intimate a knowledge of Institute affairs and men, ideas so ingenious and compelling, and such loyalty and devotion to his Alma Mater that he has come to stand in the minds of all as an earnest, resourceful, and effective agent for developing alumni interest, organizing alumni activities, and for carrying far and wide the message of the Institute."

Coaches Jarosh and Champion

THE appointment of John J. Jarosh, '30, as Head Coach, and William J. Champion, Jr., as Assistant and Freshman Coach of swimming at the Institute was announced recently by Ralph T. Jope, '28, Secretary of the Advisory Council on Athletics.

Jarosh, who succeeds Max Untersee, '19, recently resigned, prepared for Technology at the Boston Latin



Louis B. Slichter, of the Department of Geology, adjusting one of a group of portable seismographs of special design now being constructed at Technology for studying the crust of the earth by means of large explosions. In this type of instrument a weight is suspended by a long flexible spring. In operation the weight tends to remain stationary in space because of its inertia, while the ground shakes beneath it. The relative displacement between the ground and the weight is greatly magnified by the mirror system, shown as a tiny disk to the right, and recorded by the motion of a spot of light on a moving photographic film. In this way, ground movements of less than a millionth of an inch may be recorded. In the background is a large cross section through the earth, showing the paths of earthquake waves through its interior



Photograph of the Pollak-Ottendorff portrait of the late Allan Winter Rowe, '01. This portrait, made possible by the gifts of 350 friends, has been reproduced in a memorial pamphlet published by the Alumni Association. Copies of the pamphlet have been sent to those who contributed to the portrait fund

School. He is a former holder of the M.I.T. free style and backstroke records, and during his undergraduate days was awarded three straight T's. Jarosh holds the amateur record of five hours, five minutes, for the Boston Light swim, and is former New England long-distance swimming champion.

Champion is a graduate of Yale in the Class of 1933, and as an undergraduate was a prominent member of the intercollegiate swimming team. He began swimming while he was at the Moses Brown School, and after entering Yale competed in water polo.

Chemical Engineering Honors

TO DEVELOP a broader and more thorough appreciation of the fundamentals of professional work, nine outstanding students in the Department of Chemical Engineering have been selected to join a senior honors group, in which much of the routine work of the final year will be eliminated. The freedom thus obtained will be devoted to independent studies and original research. The members of the group, who were chosen because of their high professional promise, are: James G. Baker, Madisonville, Ky.; Herbert M. Borden, Taunton, Mass.; Leonard B. Chandler, Winchester, Mass.; Richard S. deWolfe, Melrose, Mass.; Edward F. Everett, Jr., Brookline, Pa.; Charles R. Holman, Norwood, Mass.; Albert J. Klemka, East Billerica, Mass.; Henry G. McGrath, Jr., Lawrence, Mass., and James L. Vaughan, Dorchester, Mass.

THE SHAH BUILDS A RAILROAD

(Continued from page 17)

swim-bladder and has developed flipper-like fins which enable it to hop along the ground faster than a man can walk. It is about seven inches long.

The section of the railroad now built runs 180 miles north from Bander Shahpour, across the Khuzistan plain. From the end of rail in the foothills, one must take mules to follow the line through and over the wild and precipitous Zagros Mountains, traditional home of the Elamites who harassed Babylon and Ur of the Chaldees. From the time one plunges into the gloom behind the first cañon portal until one emerges onto the high plateau 100 miles beyond, he will make no contact with civilization, and probably will not even see a human being. The automobile road and the city of Khoramabad are far to the west.

In the summer the lower reaches of the cañon are hotter than the plains, because there is no wind, and the red rocks hold the heat like a fireless cooker. I have seen workmen fry eggs on the rocks. No man living knows who built the tremendous military bridges across the cañon at Pol-i-Dokhtar (Bridge of the Daughter) not many miles from where the railroad enters the mountains, but it is conjectured that they also date from the Third Century A.D. The mountains are so rugged that no one has traced out the roads leading to and from them. One arch still standing in the longest (600-foot) bridge is 75 feet high.

There will be about 14 miles of tunnels in the Zagros Mountains before reaching the beautiful, fertile, upland valley of Burujird. It is cold at all times in the valley, and the winters are severe. From this city, on over the undulating plateau, the line can be followed fairly closely by car, over a good road, passing Sultanabad, the city of rugs; Qum, the holy city; and Teheran, the capital, beautifully situated at the base of the mighty Elburz, and seemingly guarded by the stately cone of Mount Demavend, 18,600 feet above the sea, one of the world's highest volcanoes. The climate of this central plateau between the Zagros and the Elburz is temperate, dry, and healthful.

Continuing from Teheran, the projected line passes to the east, skirting the foot of the mountains and crossing a corner of the Dasht-i-Kavîr, the Great Salt Desert, in order to avoid the historic needle-eye pass of the Caspian Gates. These have figured in most of the invasions of Iran, because they are the only route (except across the deadly Kavîr) leading from Khorassan. It was through them that Alexander chased Darius III, last of the Achæmenians, to his destruction, and through them poured the conquering hordes of Jenghis Khan and the army of Timurlane.

Ascending the south flank of the Elburz, the line reaches a height of about 6,800 feet at the pass of Firouz Kuh, which is pierced by a two-mile tunnel. Intense cold and heavy snowfall blanket the high country during the winter. Rail is laid in the north section, practically up to Firouz Kuh from the Caspian. At one point in the northward descent of the range, there is a sudden drop in the cañon floor, and the line, in order to negotiate this obstacle, is badly snarled in a

complicated development involving some six bridges and four tunnels in a radius of less than 800 feet. An ancient, ruined fortress crowns a high pinnacle of rock at the upper end and the lowest tunnel passes under it. Like Alice and the Red Queen, a train will do a lot of running without leaving that spot.

Farther down there is a district of heavy rainfall, where it pours most of every day and the railroaders' troubles mount up. Jungle foliage envelops everything. Subtropical plants grow to enormous size. Everything drips water. The ground oozes water — and slides — interminably. The Swedes have battled slides for four years and probably will continue to do so. Where feasible, tunnels have been built up to allow the slides to shoot over the roof; miles of drainage tiles have been laid and perforated pipes driven.

Down out of the rain belt, the warm, humid, fertile plains of Mazanderan are crossed to reach the port of Bander Shah, 85 feet below Black Sea level.

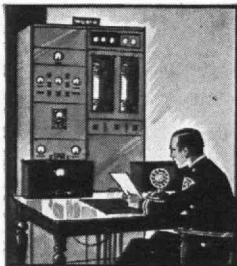
Mr. Carroll's work, beginning in 1931, was to put the southern line of 150 miles in first-class operating condition and to extend it 30 miles north into the foothills of the Zagros Mountains. The track had been quickly laid on a low embankment in order to rush equipment to the heavier and longer work in the mountains. The combined result of a year's desert conditions of extremes of temperatures, a prodigious flood, and total lack of operation and maintenance during that time had been to put the line completely out of commission. The Karun River had risen a measured 168 feet in its upper 700-foot-wide cañon in the mountains and had spread out over nearly the entire plain. In the light of this fact, most of us became converts to the Bible story of Noah's grounding his ark on Mount Ararat. We saw herds of sheep that had been in a few inches of water for such long periods that they were exhausted from standing and lay down. Herders splashed from one sheep to the other, picking them up on their feet, only to have them sink down again in utter fatigue.

Mr. Carroll had at the start, in addition to the track, a few buildings, the jetty at the port, and the big bridge across the Karun, some odds and ends of supplies, two microscopic French steam locomotives, four gasoline, five 110-ton German steam locomotives, and well over a hundred European cars of all types. He immediately ordered four American locomotives, 50 ballast cars, two loco-cranes, and five fine European passenger cars as well as necessary supplies.

Iran is a remote market for such things. One waits quite a while for doorknobs and cylinder oil to come 10,000 miles. At various times cement came from Belgium, Sweden, and Japan; rails from Germany, U.S.A., and Russia; bridge steel from U.S.A. and Sweden; roof trusses, lumber, power plant, and paint from Sweden; machine tools from England and Czechoslovakia, while white-ant and rot-resisting jarrah-wood ties continue to come from Australia. Iran has on the shores of the Caspian magnificent forests of valuable hard woods suitable for ties, but they might as well have been on the moon as far as we were concerned.

Fuel oil was close at hand for us in the pipe lines of the Anglo-Persian Oil Company. The case was different on the north line, however. (Continued on page 28)

What a public enemy said in private



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THE SHAH BUILDS A RAILROAD

(Continued from page 26)

There are only limited deposits of coal in the Elburz, and unless oil is hauled from the south, the alleged potential "oil fields" of the Caspian provinces must be developed if they really exist.

The dozen Americans had willing and courteous assistance from a large Irani staff, some of whom had worked for the Anglo-Persian Oil Company. A few had been educated in Europe, and about a dozen had been trained in a German railroad school. Clerical and accounting staffs were recruited from men well trained in the government offices. So many spoke English that it was not necessary for the Americans to learn Farsi, the Irani language.

The first construction work was to repair and raise the embankment above flood-water level, straighten track buckled into drunken curves by the heat, and ballast it.

The coolest part of the day and the working hours were from 5:00 A.M. to 2:00 P.M., but many gangs worked at night. Nearly everything was done by hand for economy's sake. Wheelbarrows were impractical and earth was carried in a flap of gunnysacking, slung over the shoulder. In the filling of the island at the port, 75,000 cubic yards a month were loaded into cars, hauled eight miles, dumped, and leveled, at a total labor cost of 5½ cents (Ante-Roosevelt) per cubic yard. Wood trestles over intervening tidal channels were filled with coral rock and shell brought 30 miles by dhows whose regular trade was in lumber or spices from India.

The Khuzistan plain is as barren of rock as it is of vegetation. Gravel for concrete aggregate had to be hauled, in some cases 120 miles, over a track that was ballasted with material made by hand over 3,000 years ago — the potsherds and broken brick from the ruins of ancient Ahwaz.

Next to Flit, water is the most precious liquid, even though it is usually warm and bad. The mineral content is high and practically all boiler feed water will have to be treated. Somehow or other, locomotives were always running out of water, in spite of the tanks at 30-mile intervals. To stop that, extra tank cars were attached to each locomotive. Specifications for a refrigerating plant mentioned "cooling" water temperature of 104°.

At one point, walking dunes threatened to engulf the track. Handshoveling a 40-foot high, half-mile long, shifting hill got us nowhere. That's the insidious thing about sand dunes. They creep up on you at night. A "snow" fence of earth-filled metal cement drums (hacked full of holes so as not to be attractive articles of nomad camp equipment) helped somewhat.

Engineers had had the dizzying experience of watching a rising flood reverse its flow under a bridge on successive days, due to the uneven lag of flood water arrival on neighboring watersheds separated by low divides. After extensive surveys, bridge openings were doubled to total 500 in 150 miles! Many miles of embankment and diversion dikes were riprapped with stone and concrete-filled cement drums tied together.

(Concluded on page 30)

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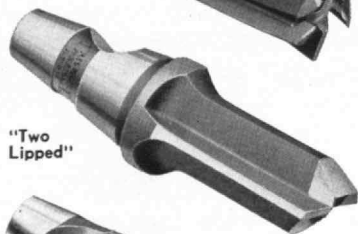
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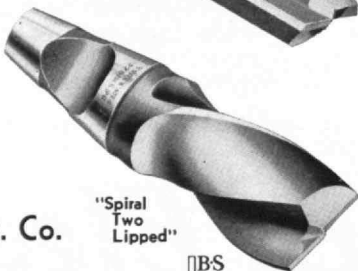
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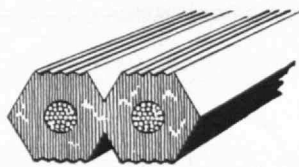
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THE SHAH BUILDS A RAILROAD

(Concluded from page 28)

During the bridge building, the shortage of form lumber was acute and forms whose boards were pithy from reuse were nursed along and mended with gasoline tins and in one case with the shirt of a desperate engineer. A turntable foundation was cast in a form made of hundreds of gasoline tins filled with earth and plastered with gatch, the Iranian plaster of Paris.

Lumber has always been so scarce in Iran that the masons have developed the remarkable art of springing arches without forms. Bricks are stuck in place in longitudinal courses for narrow barrel arches, with quick-setting gatch, or in single lateral courses, working out from the end wall in the case of wide barrel arches or domes. We used this method of constructing barrel arches between beams for floors and roofs.

Yards at three points were laid out and shops, warehouses, bungalows, water filtration and softening plants and power plants were also built. Turnouts were at nine-mile intervals and at each a standard station, water reservoir, and section house were built. With the exception of a few of the larger buildings, which were mainly of reinforced concrete, all buildings were of local brick burned by the Anglo-Persian Oil Company. We had no concrete placing equipment, so ladder scaffolding was put up, 300 men were placed on the scaffold and passed the concrete up in buckets.

All material and supplies were so scarce that the order had been to save everything. I was a bit surprised, however, to find, on the final inspection trip at the end of the job, that there had been such perfect observance of the orders. Among thousands of other things, there was a 50-foot high mountain of cement barrel hoops, a little mountain of junked automobile pistons (mostly Chevrolet), another neat pile of connecting rods. The only discards that didn't pile up were gasoline tins, whose second-hand value is nearly equal to that of automobiles.

Leaving the job and Iran was even more difficult than entering it. The hardships took on an adventurous glow, the desert seemed austere beautiful, it was fun to get up at four o'clock, the sand-fly bites shrunk to their proper size beside the mountains we knew. What mattered coffee without cream and bread without butter, when caviar was cheap? Why worry about who stole the magneto off the compressor when there were craftsmen clever enough to make a new one? We had built a railroad, a link in the long chain that is lifting Iran out of a thousand-year depression up into her rightful place in the world, a place justified by her modern regeneration and her once glorious past.

Since this article was written, work has been progressing on the northern end of the railroad. To this line on which have labored Germans, Americans, and Swedes, the Danish company, Consortium Kampsax, has added 31 miles of rail. Construction has been started on the station at Teheran, which, it is hoped, will be completed in the spring of 1937 in time for the opening of the north line from this capital city to the ports of the Caspian. — THE EDITOR.

OTHER MEN

(Continued from page 20)

involves keeping out some things in order that other things within may be cherished and maintained. In our modern society the bricks within the wall of defense include science, through which it is sought to make things happen instead of merely waiting for things to happen, the frustration of nature, if need be, by increasing the reliability and length of weather forecasts, the discovery and application of new instruments of power to lighten further the load of physical toil and hardship, the generalization for the many of the experience and experiments of the few, the reaching back into history to analyze the causes of success or failure, the recommendation of national measures that affect the citizen's welfare in the long run and in a way that may be invisible to him, and the wide promulgation of findings so that we shall not think the matter settled when government has produced a bulletin.

To illustrate these matters concretely, I wish briefly to describe a recent coöperative venture of a guild of Canadian scholars in the application of science to agricultural settlement in the Canadian prairie provinces. About eight years ago, in fulfillment of an idea that grew out of field work in South America, a study of the remaining pioneer lands of the world was proposed. This was in 1927 when the tides of immigration were flowing again after the ebb of the war years. Should newcomers be received? How could they be kept out of the already crowded cities? Does enough land remain to enable us to provide them homes in agricultural communities? Can soil science and climatological science tell us what promise of permanence such communities have, built in greater part in areas of risk on the margins of the better favored land? Is the pioneering spirit still alive in migrating humanity — the spirit that endures hardship and risk today for the sake of comfort and security tomorrow? No doubt the job needed doing! No country had confidence in an avowed immigration policy or comfort in its lack of one. Ground-water and rainfall studies in the dry marginal lands and frost and growing-season studies on the cold marginal lands had not been carried to the point of technological detail that permitted the confident formulation of a national settlement program. Three million acres were involved — an area as large as the United States if we include the pioneer lands of Argentina, Canada, North and South Africa, Manchuria, Australia, and Siberia.

After some years of discussion, a plan for the field study of settlement, as developed by the American Geographical Society of New York, was approved by the National Research Council, sponsored by the Social Science Research Council, and financed by the Rockefeller Foundation under conditions so generous and with a freedom so wise as to deserve the praise of all citizens of lands which these studies, now issuing in 11 volumes of text and maps, have already benefited. When the plan was first proposed it was asked, "Are you trying to tell a prospective farmer where to settle?" The answer was, "Not at all. What we are after is to reach the minds of the policy- (*Continued on page 32*)

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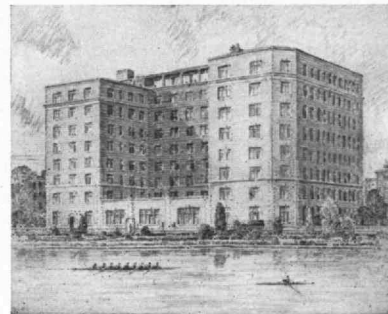
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OTHER MEN

(Continued from page 31)

makers of government, for then we shall help all settlers, not merely a few." Skepticism greeted this announcement, for the policy-makers are not as a rule thought to be looking for light from scholars. To the surprise of all of us the policy-makers took an immediate interest. The Prime Minister of one of the prairie provinces, on hearing of the plan, sent for some of the participants and his request was, in effect, "Hurry up; we want the results now." Each year additional migrants from the drier sections of Alberta and Saskatchewan were going into the Peace River country to settle on new land. In 1932 I saw passing through one of the Peace River towns a line of 15 covered wagons that had been two months on the road. Once settled on the land, these pioneers of the Twentieth Century did not intend to live by rifle and hoe, as did our own pioneers engaging in settling the Middle West and Far West of the United States. They expected government to follow or even precede them, and provide roads, railroads, telegraph and telephone lines, schools, and community doctors. Wheat was the cash crop, but the elevators of Canada were already bursting with grain. Already the government was allowing a freight rate to Edmonton so low as to be in effect a tax on the

older wheat-growing lands. How far should government go in providing "civilization" to new settlers? If longer experience and climatic records were to show that the frost risk was too great for permanent agricultural settlement, there would be left on the hands of government an expensive equipment like that which North Australia acquired and which burdens the whole Australian commonwealth most grievously today.

Within two years of the beginning of the enterprise certain field results had been advanced to the stage of report. The President of the University of Alberta told me that he wished I could have been present at a meeting of the cabinet of the Provincial Government in his office to hear an investigator's report on the soil and climatic limitations and risks of the Peace. Each member of the Cabinet asked questions and took notes as points were made of direct interest to his department of government. No longer was it patriotic merely to extol the sturdy qualities and the spirit of the pioneer, to look upon land settlement as part of a grand imperialistic advance, and to swell Canada's export of grain regardless of the world market conditions that are controlled also by what is happening to the weather and the land in Australia, Argentina, Siberia, the Ukraine, Rumania, and the United States.

There is also the deeper question of what kind of citizen can live on the margin of the agricultural land? Is that kind wanted in the commonwealth? What happens to the standard of living when the number and rate of use of instruments of power are reduced far below the needs of a modern society accustomed to a full

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complement of technological skills, equipment, safeguards to health, and means of recreation? The pioneer has fresh air and peace of sorts; has he sufficient interchange of thought and participation in coöperative enterprise to give him the social life that his instincts demand? His wife may accept life in a shack, but is her home provided with any element of beauty that her instincts require? The rate of increase of insanity among women in the prairie country — has it any relation to the drabness of life? How far is civilization to go full panoplied into the remaining pioneer lands of the world at a cost which wrecks the scheme? In West Australia colossal sums have been wasted in trying to turn townspeople from England into land pioneers under paternalistic and sheltering care only to find that one who would work at a desk in London with a guaranteed weekly wage wouldn't work in the bush with dreams and a hoe.

The Archbishop of Edmonton reported to me a seminar of 60 missionary students among whom 16 languages were spoken. Yearly, the demand exceeds the supply in the missionary field of the Canadian Northwest, as a growing frontier population calls for schools and for instruction in the forms of worship. Into the frontier zones of settlement have gone Icelanders, Ukrainians, Dukobours, Negroes, Norwegians, Swedes, Finns, English, Scotch, Americans, often in solid communities as un-Canadian as their original status proclaims. What language shall the schools employ? How shall all these population groups be Canadianized in even the mild and liberal sense of that word, for the local

community is a part of a larger or provincial community, and that in turn a part of a commonwealth, the Dominion of Canada? Moreover, the whole design of living is now so complex in our larger political units that we do well to enquire if the average citizen can understand even his own sector of it? Anderson has given a partial list of local units of government in Minnesota. Excluding elections, road supervision, drainage, parks, health, and public welfare, he finds 10,500 units, described by Dean Ford as a jungle into which 52,249 officeholders in that state alone may retreat like the Seminole Indians into the Everglades of Florida — all at a cost to that one state alone of \$154,000,000 annually! Our feet are in the swamp already, but can we do anything about it? Or are we headed toward a cataclysm like that which Dill describes so devastatingly in his "Roman Society in the Last Century of the Western Empire"? Where can the individual citizen find his place of responsibility?

It is as if we were living again in a medieval city and were watching the wall we had built crumbling beneath our feet — not because of the cannon fire of the outside enemy but because we had so badly mixed our cement. The townsmen of the Middle Ages could do something about a tangible, material wall; we find ourselves today compelled to talk of abstractions and ideals and duties. Citizenship is personal, and government is now impersonal, distant — a thing of complex forces mixed too often with vanity and greed. Add to that, the blindness of the many — educated and uneducated — toward the idealisms of the few and you (*Concluded on page 34*)

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OTHER MEN

(Concluded from page 33)

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"How are the boys voting today?" a former floor leader told me was the commonest question in the corridors of the House of Representatives in Washington. Is there courage in voting when everyone in a social group votes invariably with his fellows? Does patriotism mean no more than a dull speech on the Fourth of July by an officeholder who wants to hang on to his office? Civilization has become not an eager anticipation or an initiation into citizenship but an abstraction that is hard to relate to enjoyable realities. You can not affect Washington, D. C., by quoting the classics or the Bible. Moral talks about politics change nothing if action does not follow. "Every man in his place," taught Confucius, but on the scheme as a whole he was eloquently silent. Built out into this vast scheme we call America, we have come to the point where the wall of the commonwealth is crumbling and every man is needed for rebuilding or for defense, each in his place but his place — can it be for less than a few days each year? — is unmistakably somewhere on the wall.

I have had the pleasure during the past two years of working intimately with your President in the operations of the Science Advisory Board through which it has been sought to relate the ideals of which I have spoken to practical programs in the scientific bureaus of the government. May I conclude by saying that I wish for you no happier outcome in the years ahead, when your powers will be put to the ultimate test, than that you face that test with the unfailing generosity and gallantry and the breadth of conception of *his* citizenship that have characterized President Compton's work as Chairman of that Board and that have drawn to him the admiration of his professional colleagues from coast to coast. If you follow him in the sense of emulating these qualities, and keep also the faith in standards and self-discipline which he and the other members of the M.I.T. Faculty to my certain knowledge so brilliantly uphold, you will thereby do your individual part in honoring this institution and elevating its prestige. At the same time you will become an *active* citizen who, through scientific training and privileged opportunity, is prepared to do his special part in supplying the motive power of progress and who participates creatively in that advance of mankind toward an ever more humane civilization. You will ask unceasingly how great human possibilities may be realized and neither hesitate nor turn back from the purpose imposed by privileged education such as you have enjoyed, but push forward to make your contribution, through a society greater than yourself, to the needs of "other men."

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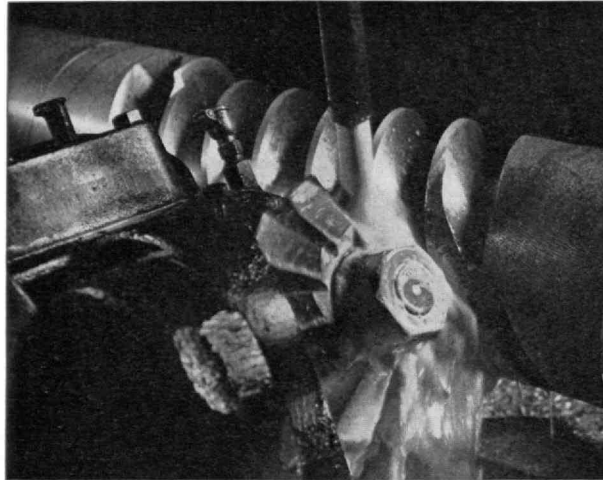
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CHECK-LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

Honorary Degrees

¶ This past June four men closely connected with M.I.T. were the recipients of honorary degrees:

¶ WALDEMAR LINDGREN, Professor Emeritus and retired Head of M.I.T.'s Department of Geology, the Doctor of Science degree from Harvard University, because he is "a geologist to whom all men turn for knowledge of the metallic secrets hidden in the rock."

¶ CHARLES T. MAIN '76, the degree of Doctor of Engineering, from Northeastern University, for being "an engineer, engaged in the profession of mechanical engineering as the designer of industrial plants; past President of the American Society of Mechanical Engineers and of the Boston Society of Civil Engineers, past President of the American Institute of Consulting Engineers, and member of the American Academy of Arts and Sciences: a man who for years has been recognized as an outstanding leader in the profession of engineering throughout the entire nation."

¶ ALBERT SAUVEUR '89, a Doctor of Science degree, from Harvard University, "long famous as a founder of the science of metallography, a Harvard professor of whose achievements we shall be forever proud."

¶ FRANCIS R. HART '89, the degree of Master of Arts, from Tufts College. The citation reads: "The vast extent of human knowledge accumulating with ever-increasing acceleration seems to compel specialization. There is a danger in this, a menace to the fundamental objective of education, which strives to develop wide powers, broad outlook, multiple interests giving scope to various ambitions, a rounded personality assuring maximum individual satisfactions and the ultimate social good. Many a gifted man remains essentially uneducated, devoting himself to a narrow field of effort. Not so with you, Sir. The degree about to be conferred recognizes success in an astonishing range of endeavor. You are a financier, a business man, director of many corporations, pioneer builder of a great new industry, one who conceives business and finance in terms of a profession. You have served long years as an administra-

tive officer of our sister institution, the Massachusetts Institute of Technology; you have advanced the cause of education in other ways by associating yourself with many organizations for the advancement of learning; last not least, you have found time for creative work in the field of letters. Your books, descriptive and historical, have widened the world's knowledge of those fascinating lands and islands washed by the waters of the Caribbean Sea and of the stirring events which took place in that romantic region."

Prize Winners

¶ CHARLES CAMSELL '09, Deputy Minister of Mines of Canada, the title of Companion of the Order of St. Michael and St. George in the distribution of honors on the occasion of the birthday of King George V. Dr. Camsell's academic honors include the degrees of LL.D. from Queen's University in 1922 and the University of Alberta in 1929; the award of the Murchison grant by the Royal Geographical Society in 1922 in recognition of his services in exploring Northern Canada; the Gold Medal of the Institution of Mining and Metallurgy, London, given to him in 1931 "for his untiring zeal and great ability in promoting the development of the natural resources of the Dominion." Dr. Camsell is at present on a tour by air of northern British Columbia and the Yukon, the scene of his youthful adventures in the Klondike gold rush. His party will map from the area an unexplored tract of 25,000 square miles astride the Yukon-Northwest Territories boundary. He will visit a number of the Canadian Geological Survey field parties in the course of a 10,000-mile tour.

¶ CYRUS F. SPRINGALL '12, ROYAL B. WILLS '18, WENDELL R. HOLT '29, first and second prizes in the architectural contest conducted by Jordan Marsh Company of Boston. In Class A — homes to cost between \$5,000 and \$7,500 — Mr. Springall of Malden won second prize; in Class B — homes to cost between \$7,500 and \$10,000 — the first prize was won by Mr. Holt of Newton Centre; in Class C — homes to cost between \$10,000 and \$13,000 — Mr. Wills won second

prize. Dean WILLIAM EMERSON of M.I.T.'s School of Architecture was one of the judges.

¶ ROBERT E. NAUMBURG '16, the John Price Wetherell medal for 1935, awarded by the Franklin Institute, Philadelphia, for his invention of the visagraph for enabling the blind to read any ordinary printed book. The award was made for "an apparatus original in its accomplishments and of unquestioned benefit to humanity."

¶ ALBERT F. HEGENBERGER '17, the Collier Trophy for "the greatest achievement in aviation in America during the past year." The award recognized Captain Hegenberger's contribution to blind flying and especially blind landings. He perfected a method now advocated by the Bureau of Air Commerce for landing under conditions approaching zero-zero readings for visibility and ceiling, which has been used widely by Air Corps pilots. The citation reads: "The army's blind flying system as developed by Hegenberger, had already received momentous recognition, when the Department of Commerce, after painstaking tests, adopted it in preference to its own method, which has been under experimentation for several years. Already the department is fighting for procurement allotments and pushing surveys of key cities for the initial installations. Eventually our Federal airways will be adequately equipped with this method and every commercial pilot will be schooled in its usage. It adds another definite stage to the safety and convenience of flying under any and all conditions."

"Such a development in aviation," reads an editorial in the *Boston Transcript*, "... is a reminder that all its promoters are not those whose sensational flights because of the distance covered figure in the news of the day. There is, for example, the pioneer who risked his life flying through impenetrable murk in order that other aviators, both in military and civilian service, might have mechanical eyes with which to see, no matter how deep the gloom of a stormy night, or how dense the fog over an ocean."

¶ A. LEWIS MACCLAIN '27, FREDERICK M. THOMAS, and REX B. BEISEL, the Wright Brothers Medal and the

Manly Memorial Medal, offered by the Society of Automotive Engineers for outstanding developments in aircraft and power plant design, for their joint paper on "The Cowling and Cooling of Radial Air-Cooled Aircraft Engines." The new cowl, which has flaps on the trailing edge, was developed after a long series of flight and wind-tunnel tests at M.I.T. under the direction of Professor SHATSWELL OBER '16. It is being used in the construction of 84 new scout-bombers for the Navy for operation on aircraft carriers.

¶ MARY ANN E. CRAWFORD '29, winner of the third prize in the book-plate competition of the Architects' Club of Chicago.

¶ JEROME M. RAPHAEL '34, first prize in the seventh annual bridge-design competition held by the American Institute of Steel Construction. The problem was to design a steel grade-crossing elimination bridge carrying a highway over a railroad and another highway parallel to the railroad.

Elected

¶ To fellowships in the American Academy of Arts and Sciences, the following Technology men: LOUIS HARRIS '20, BERTRAM E. WARREN '24, CHARLES H. BLAKE '25, WARREN J. MEAD, NICHOLAS A. MILAS, and ROBERT J. VAN DE GRAAFF, of the Faculty. Officers of the Academy include: JAMES F. NORRIS, Professor of Chemistry, M.I.T., Vice-President for Class 1, TENNEY L. DAVIS '13, Corresponding Secretary, and INGER-SOLL BOWDITCH '00, Treasurer.

¶ CARL J. TRAUERMAN '07, President, and FREDERICK C. GILBERT '98, Secretary, for a second term, of the Mining Association of Montana.

¶ VIGGO E. BIRD '08, a trustee of the Mechanics Savings Bank of Hartford, Conn. Mr. Bird is President of the Hartford Electric Light Company.

¶ B. EDWIN HUTCHINSON '09, Chairman of the Finance Committee of the Chrysler Corporation. Mr. Hutchinson has been Vice-President and Treasurer and, since 1921, has had charge of the corporation's financial affairs. In announcing the promotion, Mr. Chrysler said: "Mr. Hutchinson has been associated with me since the days of Maxwell Motors. The sound financial basis on which Chrysler Corporation was founded, its continuing strength and prestige, and the conservative financial policies which have been so effectively carried out, are due largely to Mr.

Hutchinson. He distinguished himself particularly in the early financing of the company, in the negotiations leading to the purchase of Dodge Brothers, in his leadership of Plymouth to its present place in the low-price field, and in other important developments in the corporation's progress."

¶ JOHN E. OTTERSON '09, President of the newly organized Paramount Pictures, Inc. Mr. Ottersson was formerly President of Electrical Research Products, Inc.

¶ JEROME C. HUNSAKER '12, to the National Academy of Sciences. Dr. Hunsaker, Head of the Aeronautical and Mechanical Engineering Department at M.I.T., has recently joined the United Aircraft Manufacturing Corporation as technical adviser.

¶ CHARLES H. CHATFIELD '14, a vice-president of the Society of Automotive Engineers in charge of aircraft engineering. Mr. Chatfield is Chairman of the Technical Advisory Committee of the United Aircraft Corporation. As vice-president he automatically becomes a member of the Governing Council of the Society.

¶ LEWIS W. DOUGLAS '17, alumni trustee of Amherst College for a term of six years.

¶ LINWOOD I. NOYES '17, President, Inland Daily Press Association, the largest and oldest, regional, daily newspapers publishers' association in America.

¶ WALTER H. STOCKMAYER '35, permanent President of the Class of 1935; ROBERT J. GRANBERG '35, permanent Class Secretary.

Appointed

¶ THEODORE SMITH, one of six members of the American Committee in Geneva who for the past summer assisted tourists visiting the headquarters of the League of Nations and carried on research in a subject of world interest. Mr. Smith is a member of Technology's Department of English and History.

¶ ALBERT SAUVEUR '89, representative of the National Research Council at the Seventh International Congress of Mines, Metallurgy, and Applied Geology at Paris, October 20 to 26.

¶ RICARDO L. PACHECO '12, Minister of Public Works for Costa Rica.

¶ JOHN L. BRAY '12, Head of the School of Chemical Engineering of Purdue University, Lafayette, Ind.

¶ CHARLES EDISON '13, to membership on the National Industrial Recovery Board.

¶ JOSEPH P. CONNOLLY '17, President of the South Dakota State School of Mines. Dr. Connolly has been Professor of Mineralogy, Petrography and Economic Geology at the School of Mines since 1919 and Vice-President since 1926.

¶ DUGALD C. JACKSON, JR. '21, Director of Lewis Institute, Chicago. The directorship corresponds to the presidency of other institutions.

¶ HOWARD A. ROBINSON '30, to the Irving Langmuir Fellowship of \$1,000 for the study of vacuum spectroscopy in Sweden.

¶ IVAN A. GETTING '33, to the Harvard University Society of Fellows. Five young men, graduates of various colleges, were chosen for their promise of notable contribution to knowledge, for three-year terms. These scholars devote their time to independent study and research. Mr. Getting was an Edison Scholar at M.I.T. and Rhodes Scholar from Massachusetts to Oxford University.

In the News

¶ GEORGE M. TOMPSON '73, as "trouble shooter" for the Local Control Survey of Massachusetts, a federal works project administered by the State Department of Public Works. The Boston *Traveler* of July 29 gives a long account of Mr. Tompson, the oldest ERA worker in this state. He is Secretary of the Class of '73.

¶ GODFREY L. CABOT '81, as the donor of a substantial sum to found "the James Jackson Cabot professorship of air traffic, regulation, and transportation" at Norwich University. PORTER ADAMS '14, President of Norwich, considers the gift one of the most conspicuous and potentially important events in the history of aviation and of Norwich, and the first opportunity ever given an educational institution to investigate, study, and teach air transportation and regulation. Mr. Cabot is an aviation pioneer and oldest man by 12 years to hold a commission in the U. S. naval air forces during the World War. He is a trustee of the University. Dr. EDGAR S. GORRELL '17, a Norwich trustee and a high commander in the American expeditionary army's air forces, said: "The great point which has held back aviation for years was the inability to fly and land under conditions of no visibility. With that point solved, at least in its early stages, air traffic should increase enormously and Dr. Cabot's proposition will be essential to control of air traffic with safety." Dr. Cabot was for six years President

of the New England Aero Club and was a Vice-President of the Aero Club of America. Later he was governor of the National Aeronautical Association and took an active part in the establishment of the East Boston airport. An officer and director of many New England corporations, he never lost interest in aviation and as late as June, 1935, established an award of \$10,000 to stimulate efforts to eliminate the danger of flying under unfavorable weather conditions.

¶ The late J. WALDO SMITH '86, because a memorial tower is being erected in his honor at Ashoken Reservoir. The greater part of Mr. Smith's life was devoted to the design, construction, and maintenance of water supply systems for New York City and neighboring cities in New Jersey. He was known as the builder of the Catskill Aqueduct, "one of the greatest engineers of his time, and a master of human arts."

¶ GELETT BURGESS '87, author and creator of the Purple Cow, an interview in the *New York Times* of July 30 on his arrival in New York after living in Paris for ten years.

¶ ALFRED P. SLOAN, JR. '95, on announcing that plant expansion and reconstruction work to cost \$50,000,000 has been authorized by General Motors Corporation, of which he is President, because of the "more assured outlook for profitable development." By decentralizing its plants, the company will place itself in a position so that interruption of production at one plant will not affect the operation of other plants.

¶ PAUL W. LITCHFIELD '96, an interview in the *New York Times* of July 26 on returning after a world trip that took him to six plants of the Goodyear Tire and Rubber Company, of which he is President. Everywhere Mr. Litchfield found the rubber business fairly good, the plant in England running 24 hours a day, six days a week. Throughout the British Empire, he said, better business had been achieved by "increased production and thrift rather than decreased production and waste." On July 30 a dinner was tendered Mr. Litchfield in honor of the completion of 35 years' service with the Goodyear Company. On April 26, Mr. Litchfield addressed the Engineering Association of Hawaii on aviation.

¶ GEORGE C. THOMAS '05, an account of the reception given in recognition of his having completed ten years as superintendent of the United Shoe Machinery Corporation, Beverly, Mass.

¶ KARL R. KENNISON '08, as assistant chief engineer of the Metropolitan District Water Supply Commission, Boston, for taking active part in the designing of the 25-mile aqueduct tunnel (the second longest in the world) leading from the end of Quabbin Reservoir, western Massachusetts.

¶ ALFRED H. SCHOELLKOPF '15, President, Niagara Hudson Power Corporation, an account in the *New York Sun* for April 4 of his career as a power engineer under the heading "Who's News Today."

¶ JOHN T. NORTON '18 and RUTHERFORD J. GETTENS, for their study of Chinese "magic mirrors" recently given the Fogg Museum at Harvard. The metallurgical composition of the mirrors is to be analyzed to determine whether their unusual brilliance is due to the use of mercury as a polishing agent. The 42 circular mirrors in the collection are 2,200 years old.

¶ DUDLEY B. MURPHY '19, an account of his varied career in the *Montreal Daily Star*, February 28. Graduated from M.I.T. as an electrical engineer, he became an aviator during the War and was decorated for destroying an enemy U-boat. After the War, he became interested in writing, which finally led him to write for the movies.

¶ RUSSELL L. MEREDITH '21, as aviator and falconer. Captain Meredith is one of probably fewer than 12 American practitioners of falconry, once the favorite sport of kings.

¶ OTTO C. KOPPEN '24, as designer of the "family" airplane. The plane was produced at Milford, N. H., under the direction of HARRY N. ATWOOD '05, who invented and developed a new material used in the construction of the ship. The plane is small, low-winged, a monoplane, and has less than 25 feet wing span. It could be retailed for under \$1,000.

¶ WALTER H. STOCKMAYER '35, as one of the Rhodes scholars from Massachusetts.

A.S.M.E.

¶ The following Technology men took part in the semi-annual meeting of the A.S.M.E. in Cincinnati, June 18-21: Prefabricated Housing Section — THOMAS D. PERRY '00, a paper on "Plywood and Prefabricated Plywood House Units"; ROSS F. TUCKER '92, a paper on "Financial Aspects of Housing." Steam Power Section — JAMES E. MULLIGAN '33, a paper on, "Division of Load Among Generating Units for Medium Costs." Color Section — ARTHUR C. JEWETT '01,

Chairman. ARTHUR C. HARDY '18, a paper on "Color as Light." Applied Mechanics Section, Elasticity Session — CHARLES W. MACGREGOR, staff, a paper on "Deflection and Strength of Cantilever Plates Loaded by Concentrated Forces."

Presented

¶ By KARL T. COMPTON, President of the M.I.T., an address on "Patterns in Our Ways of Thinking," at the Graduate School Convocation, Brown University, in June.

¶ By RALPH H. SWEETSER '92, a paper, at the Metallurgical Conference on Blast Furnace Development at the Pennsylvania State College, on "Pennsylvania's Leadership in the Mineral Fuel Era of Blast Furnaces," May 3.

¶ By ERWIN H. SCHELL '12, Head of the Department of Business and Engineering Administration at M.I.T., a paper entitled "Education and Training of Personnel Suitable for High Administrative Positions," at the Sixth International Congress for Scientific Management, in London.

¶ By WILLIAM W. DRUMMEY '16, a lecture, before Professor Lincoln Fairley's senior group, on "Building Trades Union Labor." Mr. Drummey has been contributing extensively from his wide experience to various courses at Technology. An account of his activities as Superintendent of Construction for the City of Boston's Department of School Buildings appears in the *Boston Review* for July 6.

¶ By VANNEVAR BUSH '16, Vice-President of M.I.T., the commencement address to Simmons College graduates, June 10, and to Thayer Academy graduates, June 8. On March 30 he spoke before the Twentieth Century Club on "The Place of Science in the World of Today."

¶ By WALTER G. WHITMAN '17, a paper, before the Society of Chemical Industry and coöperating societies, May 10, on "Diffusional Processes."

¶ By EDWIN S. BURDELL '20 and JOSEPH T. WOODRUFF '17, lecturer in architecture, addresses before the Conference on City, Regional, State, and National Planning, in Cincinnati in May. Mr. Woodruff spoke on zoning as part of the planning process; Professor Burdell spoke on the share of the sociologist in the rehabilitation of blighted districts.

¶ By EATON H. PERKINS '22, an illustrated lecture before the Cambridge Industrial Association on "Hobbying with a Color Camera," April 23.

¶ By JOHN E. BURCHARD, 2nd, '23, an address at the annual banquet meeting of the American Society for Testing Materials, June 26, in Detroit, on "The Role of Materials in Modern Housing." Mr. Burchard also wrote an article for the July *American Marketing Journal* on "Prefabricated Housing and Its Marketing Problems." He is Vice-President of the Housing Company, Boston.

¶ By GEORGE T. SEABURY '02, chairman of the Engineering Societies Employment Service, HARRY P. CHARLESWORTH '05, chairman of the Engineering Foundation, and HAROLD V. COES '06, President of United Engineering Trustees, addresses at the meeting of the boards of the national engineering societies and affiliated groups, in New York City.

Written

¶ By C. FRANK ALLEN '72, Professor Emeritus, M.I.T., an article, "The Educational Background of Certain Distinguished Engineers," in *Journal of Engineering Education*, November, 1934.

¶ By ALEXANDER W. MOSELEY '91, a book, "Water Supply in Buildings."

¶ By CHARLES M. SPOFFORD '93, a paper, "Little Bay and Bellamy River Bridges," in the *Journal* of the B.S.C.E., for January; and, with C. H. GIBBONS, an article entitled "Weighing Bridge Reactions with Proving Rings," in *Engineering News-Record*, for March 28.

¶ By WILLIAM T. HALL '95, an article about AUGUSTUS H. GILL '84, in *Industrial and Engineering Chemistry*, for April 10, under the title "American Contemporaries."

¶ By ARTHUR B. FOOTE '99, an article, "Economics and Government by a Gold Miner," reprinted from the *Nevada City Nugget*, for March, 1934.

¶ By THOMAS D. PERRY '00, an article in the *American Philatelist* for July, on "Watermarks Identifying Manufacturers of United States Envelope Paper." Mr. Perry is one of the leading American collectors of U. S. envelopes.

¶ By FREDERICK G. CLAPP '01, an article on Asia, in the *Geographical Review*, for April.

¶ By CARL S. ELL '11, an article entitled "The Social Significance of the Coöperative Plan," in *School and Society*, for April 6.

¶ By ALDEN H. WAITT '14, an article on "Europe Looks at Chemical Warfare" in the *Army Ordnance* for March-April.

¶ By JAMES A. TOBEY '15, an article in *The Military Surgeon* for April on "The Mission of the Sanitary Corps

in War Time"; a pamphlet on "The Economy of Milk in Human Nutrition"; and an article on Professor William Thompson Sedgwick, for many years Head of M.I.T.'s Department of Biology and Public Health, in Volume XVI of the "Dictionary of American Biography" of 1935.

¶ By ROBERT E. WILSON '16, an article on "Science and Capitalism," in *Industrial and Engineering Chemistry* for August 10.

¶ By ANTHONY ANABLE '20, an article in *Chemical and Metallurgical Engineering* for June, 1935, on "What of the Future for Chemical Engineering Graduates?" In February, 1933, in that magazine, he published a case study of 809 graduates of Course XV, M.I.T.

¶ By HENRY S. CANBY, illustrated by ALBERT KRUSE '20, a book, "The Age of Confidence."

¶ By WARREN E. HOWLAND '22, an article on "Mathematics in Civil Engineering," in *School Science and Mathematics*, for April.

¶ By RICHARD H. FRAZIER '23, JOSEPH D. EISLER '32, and WILBERT P. FRANTZ '34, an article, "Precise Speed Control for D-C Machines," in *Electrical Engineering* for March.

DEATHS

*See class notes for account.

¶ ELOF BENSON, former Curator of Physics apparatus, M.I.T., April 22.

¶ BENJAMIN E. BREWSTER '72, April 29.

¶ STEPHEN H. WILDER '74,* May 15.

¶ WILLIAM L. BENEDICT '80, June 6.

¶ WILFRED A. NORRIS '80, August 4.

¶ SUSAN H. LONG '80 (Mrs Harry V.), April 15.

¶ MARY T. PALMER '84,* July 23.

¶ CHARLES O. PRESCOTT '84,* August 4.

¶ FREDERICK FOX '85, January 9.

¶ TRACY LYON '85, April 29.

¶ JAMES MEANS '85, May 5.

¶ S. CUYLER GREENE '85, June 24.

¶ ISAAC W. LITCHFIELD '85, June 24.

(See front section for account.)

¶ ARTHUR D. LITTLE '85, August 2. (See front section for account.)

¶ ARTHUR I. PLAISTED '85, May 12.

¶ ALFRED I. DU PONT '86, April 29.

¶ JAMES P. LYNDE '86, April 9.

¶ CHARLES R. LAROSE '89, January 21.

¶ WILLIAM M. DUANE '89, August 22.

¶ FRANK A. McDONALD '90, January 24.

¶ ANDREW W. WOODMAN '90,* July 1.

¶ WILLIAM M. ROSEWATER '92, May 25.

¶ FRANK C. SHEPHERD '92,* August 6.

¶ HARRY L. CLAPP '93, April 16.

¶ FRANK HOUGHTON '93, May 6.

¶ ARTHUR M. MOODY '93, March 2.

¶ JOSEPH Y. PARCE '93, April 18.

¶ F. HIGHLANDS BURNS '95, March 30.

¶ WILLISTON W. GREENWOOD '95, no date given.

¶ WALTER J. RICKEY '95,* May 22.

¶ WALTER F. STEVENS '95,* June 15.

¶ HELEN W. McELWAIN '95, July 10.

¶ HERMAN A. POPPENHUSEN '96, May 8.

¶ GEORGE M. LANE '97, June 15.

¶ BERTRAND H. JOHNSON '98, August 28.

¶ MARY HOWE LYONS '98 (Mrs. John B.R.), February 20.

¶ WILLIAM H. J. O'LEARY '99, January 16.

¶ WALTER C. WHITNEY '99, May 20.

¶ ALBERT S. MERRILL '00, March 31.

¶ ALBERT C. DART '00,* May 15.

¶ LOWELL E. SMITH '05, July 16.

¶ CHARLES H. CLAPP '05, May 9.

¶ JAMES C. PEASE '05, April 15.

¶ T. BRECKINRIDGE CABELL '05, January 12.

¶ ROBERT HURSH '06,* May 13.

¶ LILLIE C. SMITH '06,* August 9.

¶ ALFRED G. KELLOGG '09, April 22.

¶ ROBERT L. SMITH '09,* August 19.

¶ HENRY R. PUTNAM '09, June 8.

¶ WILLIAM J. BUCKLEY '11, March 10.

¶ WILLIAM S. BURLEIGH '11, September 3.

¶ ARTHUR D. BUZBY '12, May 26.

¶ BARTON E. BROOKE '13, June 29.

¶ BASIL LANPHIER '15, April 26.

¶ MALCOLM A. L. EALES '18,* May 24.

¶ RUDOLF R. SIEGFRIED '21, May 28.

¶ HAROLD E. SMELTZER '22, March 24.

¶ CAMILLE A. SABAH '23, March 31.

¶ RICHARD AMES '23, March 31.

¶ HARRY C. BOYDELL '24, April 16.

¶ WILLIAM M. CROFT '24,* June 27.

¶ MATTHEW B. POLLOCK '25, February 17.

¶ WILLIAM V. HANKS '25, May 20.

¶ RICHARD A. DARLINGTON '27, April 27.

¶ WILLIAM W. DULLEY '27, April 8.

¶ OTTO W. WALTER '27, July 9.

¶ LEWIS S. TAPPAN '28, May 28.

¶ JOHN J. HERLIHY '28, August 17.

¶ ERNESTO SAMPER '29, July 1.

¶ ADELINE F. PRATT '30, May 12.

¶ MALCOLM H. PILCHER '32, March 30.

¶ JAMES G. ESTES '33, June 1.

¶ NATHANIEL L. GERBER '34, March 17.

¶ RICHARD G. AMES '35, June 18.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Atlanta Alumni Association of the M.I.T.

The Association held the most successful dinner of its history on the night of June 25 at the Atlanta Athletic Club. Present at the dinner were three members of the M.I.T. faculty, 16 local Alumni, two local guests, and 18 out-of-town Alumni who were attending the convention of the Society for the Promotion of Engineering Education — a total of 39.

President Sam H. Reynolds '22 introduced the guests of honor, Professor D. C. Jackson, retired Head of the Department of Electrical Engineering, Professor A. L. Townsend '13, of the Department of Mechanical Engineering, and Professor C. E. Tucker '18, of the Department of Electrical Engineering. The speaker of the evening was Professor Jackson, who gave an interesting summary of the early history of the Institute, its influence on engineering education, and the present trends in engineering education and research at the Institute. Professor Jackson also gave an explanation during the showing of the famous Edgerton high-speed moving picture. Through the courtesy of H. S. Busby '14, an interesting movie of the launching of the *Queen Mary* was shown.

The local Alumni present were: A. K. Adams '13, H. S. Busby '14, O. R. Ethridge '26, J. T. Fitten '95, R. L. Gatewood '25, F. W. Hadley '93, L. S. Johnson '24, Montgomery Knight '22, H. C. McLaughlin '18, W. E. Mitchell '03, S. H. Reynolds '22, W. J. Sayward '01, C. A. Smith '99, C. M. Smith '32, R. W. Smith '21, and E. Y. Webb, Jr., '28. — RICHARD W. SMITH '21, *Secretary*, 425 State Capitol, Atlanta, Ga.

M.I.T. Club of Western Pennsylvania

We regret to report the loss of one of our outstanding members, in the form of a transfer to a greener field. This member is our recent club President, John T. Nichols '22, and the greener field is California. As many of the members as could be collected for the purpose gathered at the Keystone Hotel on Monday, May 20, for a testimonial and farewell luncheon to Mr. Nichols. At this luncheon Mr. Nichols was given a brief case. He was further rewarded with a document which introduced him to Tech men in California and gave him certain rights and privileges. Our Vice-President, M. G. Davis '25 and 14 members cheered the wayfarer on his journey.

The annual meeting of the Club was held Tuesday, May 28, at the University Club. It was graced by the presence of

one of our ex-Presidents, R. E. Zimmerman '11, Vice-President of the U. S. Steel Corporation, who also acted as toastmaster in his inimitable form. His presence saved the day for us, as the scheduled speaker of the evening did not appear. The time flew for all but a few unscheduled speakers who were called upon for extemporaneous addresses. These included I. W. Wilson '11, G. W. Ousler '16, R. A. Miller '16, and H. L. Bodwell '98. Apparently most of those present were either employees or customers of the Steel Corporation. Only a few unorthodox guests claimed affiliation with the Aluminum Company, Pittsburgh Plate Glass Company, and other local institutions.

The following officers were elected for the coming year: President, M. G. Davis '25; Vice-President, E. A. Holbrook '04; Treasurer, S. J. Helfman '24; Secretary, E. J. Casselman '15; Assistant Secretary (Membership), C. M. Boardman '25; Assistant Secretary (Publicity), E. A. Soars '21; Alumni Council Representative, L. K. Yoder '95; Executive Committee: L. F. Howard '95, F. C. Foote '16, and W. H. Reed '27.

On August 8 our final meeting was held at the home of Marc Greer '26 in Rosslyn Farms and, in spite of threatening showers, a large number of the members turned out for the buffet supper and keg of Pilsener. The usual enjoyable evening of good food and good fellowship was had and those who attended this extra meeting look forward to the arrival of the next one.

Steps were taken at the May meeting to arrange a new meeting place for the Friday luncheons, with a tentative agreement on the Harvard-Yale-Princeton Club. This has since been changed to the Smithfield Grill, Oliver Building. We should like as many as can to attend these luncheons on Fridays at 12:30. — E. A. SOARS '21, *Review Secretary*, Townsend Company, New Brighton, Pa.

Technology Club of Puget Sound

The following notes were sent in by Joseph Daniels '05 for the Secretary: Members of the group ferried across the Sound to Bremerton on Thursday, June 6, to hold a meeting at the Puget Sound Navy Yard with Technology men, officers of the U. S. Construction Corps, stationed there. Under the guidance of Commander R. T. Hanson '11, the party was escorted over the yard to ships and docks, as well as to visit the home of Commander Hanson for a social call to meet other officers of the station. Dinner was served at the Enetai Inn. Those present were Commander R. T. Hanson '11, Lieutenant Commanders J. G. McPherson '24, F. A. Tusler '23, T. P. Wynkoop '22, Lieutenants B. E. Manseau '27, S. N.

Pyne '30, A. M. Zollars '33, R. K. James '33, W. C. Allen '34, and N. C. Willey '06, of the yard organization, C. E. Lasher '06, H. W. McCurdy '22, J. W. Pratt '23, J. T. Heffernan, Jr., '22, M. P. Anderson '10, C. M. Culp '01, and Joseph Daniels '05.

This meeting was the first opportunity in many years for the local members to become acquainted with the naval constructors who have attended Technology. The meeting was very delightful, and, in the opinion of the men present, one of the best social gatherings we have ever had. It is the hope of all our local men to meet more frequently with the officers at the Yard and become better acquainted with them.

Although this was the time planned for the election of officers, the matter was deferred to a later date. However, Charles M. Twelves, Jr., '30 was elected Secretary. A resolution was passed expressing a tribute to the late Dean Alfred E. Burton, friend of most of us during our days at the Institute. — CHARLES M. TWELVES, JR., '30, *Secretary*, Sound View Pulp Company, Everett, Wash.

M.I.T. Club of Northern New Jersey

Following dinner at the Technology Club of New York on the evening of June 7, a 16-man team representing our Club met a similar team from the New York Club in a duplicate-bridge tournament. After each pair had played three boards against each pair of the opposing team, it was found that the team of Ed Thimme '23 from the infant New Jersey Club had won over the warriors of Al Glassett '20 from the oldest Club in the league by the close score of 686 to 658. The New York team did succeed in winning the highest individual pair scores. A trophy, presented jointly by the two clubs, was awarded to the winning team.

Everyone concerned seemed to have an extremely pleasant evening, which was more important than the score and for which we are indebted to Al Glassett and the New York Club. Both clubs are enthusiastic for renewal of the battle in the fall, when we hope to have the opportunity of returning the hospitality extended to us.

The New Jersey team consisted of Thimme '23, Price '22, Treadwell '33, Coe '34, Rose '22, Way '19, Tremaine '23, Coddington, Spitzli '27, Godbout '23, McArdle '24, Ellms '25, Brooks '30, Herbert '00, Roberts '31, Ragowski.

Those on the New York team were Glassett '20, Holderness '22, Wiren '19, Duff '15, Marlow '17, Wilson, Radoslovich '26, Latham, Hatley '27, Winsor, Hughes, Meyer '32, Heyser '26, Weil '01, Dimmock '22, Worden. — W. I. McNEILL, *Secretary*, Colgate Palmolive Peet Company, 105 Hudson Street, Jersey City,

N. J. CAROLE A. CLARKE '21, *Publicity Committee*, 10 University Avenue, Chatham, N. J.

CLASS NOTES

1874

The Secretary was the sole representative of the Class at the Alumni Dinner on June 3, although special notice had been sent to the known survivors, now only six in number. Presence and replies did not materialize, however, and a few days later it was learned that Wilder had passed on, May 15, after a brief illness, although he had been in failing health for some months. He had been engaged in the practice of law in Cincinnati, Ohio, until his retirement a few years ago. The writer had met him frequently in past years and was looking forward to seeing him again on a recent visit to the city. He left a widow who was absent at the time of the Secretary's visit. — JOHN C. CHASE, *Secretary*, 9 Ashburton Place, Boston, Mass.

1877

The Class held its reunion Tuesday, June 4, at the Exchange Club, corner of Milk and Batterymarch Streets. There were 13 members present, arranged around the table as follows: President, Charles A. Clarke, Watertown, Mass.; George W. Kittredge, Yonkers, N. Y.; Joseph P. Gray, West Newton, Mass.; Arthur L. Plimpton, Dorchester, Mass.; Byron E. Higgins, Somerville, Mass.; Benjamin C. Mudge, Lynn, Mass.; William H. Beeching, Winthrop, Mass.; Edward W. Davis, Boston, Mass.; Frank I. Sherman, Mansfield, Mass.; Frederick W. Wood, Baltimore, Md.; Henry D. Hibbard, Plainfield, N. J.; George Bartol, Cleveland, Ohio; Charles B. Price, Swampscott, Mass. (Mr. Price, a friend of President Clarke, was a guest); and B. T. Williston, Secretary-Treasurer. The lunch, a very fine one, was enjoyed by all present. Letters from absent members were passed around and read.

Joe Gray gave a very interesting account of the organization of the Class, which I had him send me in letter form as follows: "Without any question, the Class of 1877 was the first one to form a regular organization. This occurred in either December, 1874, or January, 1875. In December, 1874, Caleb Cushing, grandson of one of our ablest statesmen and one of the most popular members of the Class, was killed in the gymnasium while performing the giant swing on the horizontal bar. Upon his death, our Class held a meeting, and a committee was appointed to attend the funeral. The meeting was adjourned until the return of the committee, when a complete organization of the Class was formed, with John Hardman as President, Hale as Secretary, and myself as Treasurer. Later, at my request, the treasurership was combined with the position of secretary.

"In 1876 at a meeting of the Class, a committee was appointed to take up with the other classes the subject of selection

of the Tech colors. At the suggestion of our committee those colors were chosen — composed of cardinal red and silver gray — and were worn on the hat bands of the students when they attended the centennial celebration in Philadelphia. In regard to the colors — I think you will find record of same incorporated in Hale's class book of 1910."

Wallace Hackett sent in a letter which was enjoyed by all present. "... I wonder if you would be interested in a few random memories of one who was for a short time a member of the Class. I refer to Stephen Decatur, who died a few years ago at his home in Kittery, Maine. I knew him well and was thrown into intimate association with him at times. We lived in the same community and enjoyed the same friends. He had many excellent qualities; he was fearless, honorable, and intensely patriotic. As a young man, there was a little too much of the dare devil in him, but this moderated in time.

"His name was originally Beverly Decatur and he started on the appropriate career of a Decatur by entering as a student at the U. S. Naval Academy. His father, who was a Naval Officer, lost his sight in the service. On the death of his elder brother, Stephen, he left the academy without completing his course and went to Boston to assist in the care of his father. It was a familiar sight on the streets of Boston in the 'Seventies to see a tall, dignified, gray-haired officer with a naval cap, who was blind and was escorted by his son on his walks.

"On the death of his brother, our Decatur took the name of Stephen, which was a sort of family inheritance. About this time he came to the M.I.T. He naturally stood high in tactics and was appointed Sergeant Major of the regiment. I recall his first appearance at the building on Boylston Street. You remember the long flight of stairs leading to the second story. Occasionally some of the lads would sit on the banister sideways and slide to the bottom; it was considered rather venturesome. Decatur came along while this was going on and viewed the performance for a minute; then he stepped calmly on the upper rail and slid down at a great speed, standing up! There were no other competitors.

"He was an expert yachtsman and had a seagoing catboat in which he made several trips to Florida, generally alone. He knew the coast thoroughly and that knowledge came in handy in a later incident. He would sometimes take his boat outside Whales Back Light into deep water, then strip, lash his helm and loosen the sheets so that the empty boat would describe the arc of a large circle. Then he would dive off and apparently swim away from the boat, but which, by careful calculation, he would meet, as it swung around the circle a hundred yards distant.

"Decatur served in the Spanish war, as did his two sons. He was appointed second in command of a large transport and saw active service between New York and Havana. A brother officer told me this

incident: The skipper was an elderly officer with scant sea service, having performed what is called desk duty for the most part. They were cruising north off the coast of the Carolinas one night, when the Captain and Deck Officer saw a light which puzzled them, and they thoughtlessly steered toward it with a view to finding out things. At that juncture, Decatur came on deck; he saw the situation; he knew the coast. He sprang to the wheel, threw it hard a-starboard and rang for full speed. A few minutes later he approached the bewildered Captain and apologized for what would ordinarily be a breach of discipline. He said: 'It was the only way, Sir. That was a shore light and we would have been on the rocks in five minutes.'

"When they reached New York, the Captain called Decatur into his cabin and said: 'I know that I ought not to be in charge of a ship. I have not had the proper experience. I have written a full report to the department. You saved the ship, and I have given you full credit for it. As you are going ashore, mail this report.' Decatur took the report and, at a suitable point, he tore it up and threw the scraps down a sewer."

As Mr. Hackett did not give the reason Decatur was discharged from the U. S. Naval Academy, I wrote him that I had heard that Decatur assisted in the white-washing of a negro. The following letter is a reply and is of such interest I am sure it will be worth while to consider as a part of the first:

"... You are quite right about the cause of the termination of Decatur's academic career. In his youthful days he frequently did unwise and adventurous things, impelled by a superabundance of animal spirits and partly, perhaps, by reason of a fondness for the limelight. His great uncle of Tripoli fame was of the same dashing character. His life ended in a duel, you recall. Our man would have made a wonderful officer had opportunity served.

"The fact that he was obliged to leave the service for which he was admirably suited through his own impetuosity doubtless was a lasting regret. As if this punishment were not sufficient, it was emphasized and intensified by the fact that he had a son who practically duplicated his father's career. You may know of that circumstance, but perhaps not of its dramatic conclusion, so I will give it to you briefly. The lad entered the Naval Academy. He was very bright and popular, stood high in his class, and was generally regarded as one of the men who would be heard from, and you may fancy the pride his father took in these conditions. To him the family name and the service were the two most important considerations in life.

"To the horror of his father and his friends, a few weeks before the day of graduation when discipline was a bit relaxed, the son, too, committed some infraction of discipline which the authorities could not overlook and he was, thereupon, summarily discharged. The Academy plays no favorites. Our friend

1877 Continued

made frantic efforts to secure amelioration, but without success. In a final effort he called on the President, who at the time was one T. R. That high official was evidently familiar with the case, for he shook his head and said: 'It is no use, Mr. D., I will not have a man of that type in the service (using some term appropriate to the office, with which I am not familiar).' Our man took fire at once and answered: 'Mr. R., if you was not Mr. President, I would knock your block off for saying that.' Teddy showed all his teeth, peeled off his coat in a jiffy, and said: 'Don't let that fact detain you for an instant, Mr. D. It would give me great pleasure to have you try it.' For once our man had sense enough not to give way to his impulse and the incident closed.

"The conditions indicated are almost unparalleled. The fact that father and son were both gratuitously involved in incidents which barred them both from a service which they revered as a family heirloom must have led to embarrassing moments between them. It is quite possible that each kicked the other round the house. In fact, at times they used to go for each other with bare fists. At first, the elder easily won these bouts, but gradually the youngster came along and it was rumored that young Steve could lick the old man. But I fancy the elder held himself a little in reserve. It would please him to have the junior win.

"At the outbreak of the Spanish war, the Navy Department was quite anxious to secure officers of training and experience. Both father and son volunteered and their services were accepted, and both served with honor and credit. So to some extent the scars of adolescence were healed in maturity. . . ."

Shortly after our meeting, a letter from Francis H. Bacon of Chanakkale, Turkey, was received. Bacon's letters are always of interest, so I have included this one: "Yours of April 9 and May 11, with Clarke's kind invitation to lunch, were received, but I have been so knocked up by a siege of boils, d—n 'em, that I couldn't write or do anything. Doctor sent me to bed and ordered me not to do anything, read, write, or think, but you can believe I didn't stop thinking! However, there was 'Old Faithful' Williston, trying to drag out the unwilling classmates from their holes, and now I wonder how many got together at the Exchange Club down in Batterymarch. I made the furniture for it years, years ago. Now another thing, boy. Just send that Tech Review to some younger man of your son's generation who will appreciate it more. To me it seems like a page from another world, which it is, and these swarms of scientists, engineers, electricians talking a language I don't understand bewilder me. I laugh when I think of the old days in Boylston Street, when we slid down the banisters, tripped over the coconut matting, or hired two or three organ grinders to play at the same time outside the lecture room. . . ."

"Better give up trying to get any notes from the old '77 wrecks. Play with your movie camera and plant your potatoes,

and do as I do: pull the strings of memory; enjoy going down the years of retrospect! I wish I might have been at Clarke's lunch, but no alumni dinners for me. The Doc said my boils were from wrong diet — corrected now, but it affected my hearing. Perhaps it was fine not to listen too much. Seventy-nine next birthday! Old enough to know better, but you are ahead of me by a year or two. If you go to Washington, take a look at the marble shrine of the 'Constitution and Declaration' in the Library of Congress! That was my last work — designing that. If those fellows in Washington keep on spending the public money on buildings, and so on, the dear 'peepul' will pay for it. The world is too big for me. I give it up. I can imagine how glad you are to have your grandson better. I have three, but they have got away from me, too busy chasing petticoats. Please remember me to Plympton, Clarke, and any of the old crowd left."

The Boston Transcript artist, Mr. Frank Colby, made two exposures of the members of the Class, from which enlargements have been sent to interested members.

The notice of the reunion of the Class of 1877 at Harvard University attracted my attention. A letter to Gardner W. Alles, Secretary of that Class, brought the following reply: ". . . The Harvard Class of 1877 entered college with 217 members. There were 256 counted with the class, first and last, during the four years. There are 47 now living. Eleven were present at our dinner on June 19, so that you made a considerably better record than we did." In our Class there are now 30 living members whose addresses are known and six members whose addresses are not known. President Clarke, and B. T. Williston, Secretary-Treasurer, were reelected for the coming year. The meeting ended with an expression of good fellowship and with the hope that all present would be at our next reunion. — BELVIN T. WILLISTON, Secretary, 3 Monmouth Street, Somerville, Mass.

1882

The Class met for its Fifty-Third Reunion on June 12, at Hugo's, an attractive outing resort in North Scituate, Mass. Here, in a room reserved for the occasion, members of '82 and guests gathered at noon and enjoyed a social time till dinner was served. Those present at this dainty repast were: George Faunce and his daughter, Mrs. Tompson, Charles and Mrs. French, Fred Gooding, Charles and Mrs. Jenkins, Henry Ross, Arthur and Mrs. Walker, and Alfred Darrow. Our honorary class member and Assistant Secretary, Rachel Snow, was very much missed. We were, however, glad to know that she was having a delightful automobile trip to California with friends.

Following the dinner, letters of regret from those unable to be with us were read in whole or in part by Mrs. French, who began her reading with a letter from Rachel, written before she started on her

trip, regretting her inability to attend the reunion and sending best wishes to all for a happy time.

Frank Cheney, in his kindly way, wrote that he was sorry he could not be with us, and continuing, wrote: "We are fast approaching the time when we will have our Fifty-Fifth anniversary and we must all do our best to hang on until after that date. I hope you will have a good attendance at the lunch, and wish you would express my greetings to those present. Personally, I am in good health and in spite of the depression seem to be able to keep going."

John Low writes: "Sorry not to be with you all on Wednesday. I am o.k., still going strong. My last year has been ordinarily uneventful. No more children; no more grandchildren, since May, 1934." — Letters from Miss Ames, George F. Chapman, and Edgar B. Thompson brought cordial greetings to class members and regrets that the writers could not be with us.

Since our last meeting, news has been received that our classmate, Winslow B. Ayer, died on March 3. He was President of the Eastern and Western Lumber Company, Portland, Ore. His home was 183 Nineteenth Street, North, Portland, Ore. He was a life member of the M.I.T. Alumni Association. — From his granddaughter, we learn that Charles J. A. Wardwell, 496 Park Avenue, Orange, N. J., died in August, 1933. He was a member of the Society of the Cincinnati. — ALFRED L. DARROW, Secretary, 39 Garrison Road, Brookline, Mass. RACHEL P. SNOW, Assistant Secretary, Pin Oakway, Falmouth, Mass.

1884

The Secretary has to chronicle the death of Charles O. Prescott in Edgartown, August 4. Prescott was born at Westfield, Mass., February 4, 1855, prepared at Westford Academy for the M.I.T., which he entered in 1873, following a special course until 1876. He taught in a boys' school in Plymouth from 1878 to 1881, when he reentered the Institute and was graduated in chemistry with us. He was assistant in chemistry the next year. The two following years he spent in travel in the Far East, after which he returned to the boys' school for three years. Thereafter he taught German and chemistry at Milton Academy for six years, retiring in 1905.

In his retirement at Westford he filled many offices of honor and trust, as member of the School Committee, trustee of the Public Library and Westford Academy, Treasurer of the First Parish Church, and Treasurer of the Water Company; he was also a member of the Twentieth Century and Boston City Clubs. Prescott was a companionable fellow and will be missed at class gatherings.

The Secretary has also received notice of the death of Mary T. Palmer of the Back Bay. She was instrumental in getting an endowment for the Palmer Memorial Cancer Hospital. She was also interested in natural history, writing articles on the subject. She attended some

1884 Continued

classes with us but never was affiliated with the class, and was known to but few of us. — AUGUSTUS H. GILL, *Secretary*, Room 4-053, M.I.T., Cambridge, Mass. S. S. DEARBORN, *Assistant Secretary*, 4 Newport Road, Cambridge, Mass.

1888

"The grandest dinner, the most gorgeous floral exhibits, and the finest hospitality" was the consensus of opinion of the 19 members of the "glorious Class of '88," who, for the sixth consecutive year, celebrated their anniversary of graduation at the magnificent home of Ned Webster at Chestnut Hill on June 1. The fortunate ones were: Bates, Bridges, Collins, Cole, Conner, Ellis, Faunce, Horn, Hamblet, Lee, Mead, Reynolds, Runkle, Sawyer, Sjostrom, Thompson, Webster, Williams, and Wood. While touring the gardens with Ned our attention was called to several gorgeous *onathogoliums* with their prismatic shape and hundreds of tiny buds, as well as scores of other rare blooms far beyond your Secretary's knowledge. After dinner in the spacious music room, our host led a very interesting discussion of the recent Supreme Court decision and the proposed public-utility legislation, all taking part, as every man present was more or less interested in these subjects.

The following men were present at Symphony Hall for the Alumni Day Dinner, June 3: Conner, Horn, Sawyer, Stone, Webster, and Williams. We were all very much pleased to greet Charlie Stone again.

The following is quoted from a letter from Edwin O. Jordan, University of Chicago: "I am going to try to get on next year and, of course, am counting on the great 'Fiftieth.' It does seem to have got around pretty fast. I am not quite ready for it yet."

William G. Besler writes in reply to a detailed description of the Ned Webster dinner as follows: "I wish you had not been quite so explicit about the fruits, vegetables, squab chicken, and so on, and, to cap the climax, six or seven other things that tickle the palate. It was bad enough that I could not be there, without having it rubbed in." — B. P. Flint was in England at the time of the dinner and knows he "missed a lot of fun." Fred R. Nichols of Chicago sent a long telegram recounting his recent travels and wishing good luck.

Ike Litchfield '85 became an Honorary Member of '88 after umpiring the famous baseball game at Wianno in 1913. We all mourn the passing of a true friend of our entire Class. — BERTRAND R. T. COLLINS, *Secretary*, Chebeague Island, Maine.

1890

Harry Goodwin and his wife were reported in California in July, having made the trip by water with stops in San Salvador, Guatemala, and Colombia. In the same paper was announced the arrival in Norway of Dr. Franklin W. White and Mrs. White, with their son, H. Bowen White, who was graduated from Harvard this year.

Your Assistant Secretary had the pleasure of renewing acquaintance with two of his mining-laboratory comrades the past summer, Wallace Macgregor at Berkeley and George Sonnemann at Spokane. Macgregor is building a gold mill in California and looking after mine operations there and in Nevada. Sonnemann's big mining property in Idaho has been closed down during the depression, but he keeps up his connection with mining by serving as Chairman of the Spokane Section of the American Institute of Mining Engineers. Just incidentally, George helps keep Spokane clean with his laundry.

A list of those present at our Forty-Fifth Reunion was published in the notes for July so it will not be repeated here. After dinner in Swampscott on June 2, Harry Goodwin gave a wonderfully informative, but concise, *résumé* of the changes in each department at Technology. He is now Dean of the Graduate School, in which there are over 500 working for masters' and doctors' degrees.

Letters of regret were received from several. Hayden hoped everybody would make "at least as good as par." Hale said he was enjoying life with the aid of his eight grandchildren, but could not go to big jamborees. Carney sent his best wishes. Clark was recovering from a heart attack. Walker was held up by examinations. Dr. Marie Molineux said, "Expeditions must be few." Rheumatism kept Pope from coming on, and Waite at the last minute found he could not make it. Everybody sympathized with these unfortunates, for it was a wonderful day and everything went smoothly. On June 3 there were 13 at the Alumni Banquet at Symphony Hall, including Mann and Roots who did not show up at Swampscott.

Three of the fellows have passed on recently: L. Joseph Royce of Dorchester, Andrew W. Woodman of Evanston, Ill., and Frank A. McDonald of Carnegie, Pa. Mrs. Gilmore sent the following clipping concerning Woodman: "Andrew Whitney Woodman, consulting civil engineer and manufacturer, Chicago, died July 1 in Evanston, Ill. Born in 1866 in Gardner, Mass., he was graduated in civil and mechanical engineering from M.I.T. in 1890 and served for the next seven years with the Boston Bridge Works. He then became district manager for Roebling Construction Company, and went to Chicago in 1905. From 1909 to 1914 he was a contracting engineer and later became President of the Joliet Bridge and Iron Company. In 1921 he purchased the National Steel Tank and Manufacturing Company. For the past several years he maintained a consulting office." — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass. GEORGE A. PACKARD, *Assistant Secretary*, 50 Congress Street, Boston, Mass.

1892

Charles F. Park, at a meeting of the Taunton (Mass.) Lions Club, March 25, gave a significant address on the automotive industry and the trend of motor-

vehicle design, tracing the history of the industry from its very inception. He emphasized the enormous magnitude of the industry in terms of materials and money value represented. He discussed the economic factors and the importance to the industry of the large percentage of replaced cars scrapped, the tremendous increase in the production of trucks, and pointed out the economic significance of the large overturn which enables a prompt realization in improvements in design and fabrication. This address was published in full in the Taunton *Daily Gazette*.

The Class was represented on Alumni Day, June 3, by John Hall, who called on Professor Hutchinson. Those attending the Alumni Dinner were: W. R. Kales, C. F. Park, J. S. Parrish, A. S. Heywood, H. J. Carlson, C. E. Fuller, and W. S. Hutchinson.

We regret to announce the death of Frank Cummings Shepherd on August 6. At the time of his death he was a consulting engineer of the Boston and Maine Railroad. Among his important connections are the following: resident engineer of the New York Central and Hudson River Railroad in 1902; construction engineer of the Boston and Maine Railroad in 1912, rising through the ranks until he was appointed consulting engineer in 1927; chairman of a committee investigating the inroads of termites and other insects on pilings in Boston Harbor and along the New England coast; member of the American Society of Civil Engineers; chairman of the committee on wood preservation of the American Railway Engineering Association; second Vice-President and member of the executive committee of the American Wood Preservers' Association; and a past President of the New England Railroad Club. He leaves his widow, Mrs. Alice E. Shepherd; a son, Thomas; a sister, Miss Ella Shepherd of Gloucester; and a brother, Ralph Shepherd of California.

Arthur M. Worthington, a descendant of one of Dedham's oldest families, has just been elected chairman of the committee in charge of Dedham's tercentenary celebration to be held in 1936. Arthur, who, after being graduated with our Class, continued his studies, was graduated from the Harvard Medical School, and has practiced in Dedham for 35 years. He is at present chairman of the Board of Health and curator of the Dedham Historical Society. During the War he was captain of a medical corps near Coblenz. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass.

1895

So this is Oyster Harbors Club! A beautiful location on an island near Oster-ville, Mass., where the Class of 1895 held their Fortieth Reunion on June 1, 2, and 3. Your Secretary and his "assistant" formed the vanguard of those attending and arrived early on Friday, May 31, to complete final arrangements for this most promising event. After checking and double checking the list of paraphernalia required to make the setting complete,

1895 Continued

it was discovered that the all important reunion films were left behind at Ayer, Mass., so your Secretary with his "assistant" hastened back to Ayer and returned to Oyster Harbors by midnight to be welcomed by Booth, Gardiner, and Johnny Moore with their wives. The laugh was on Yoder, but nevertheless he made good.

On Saturday morning Mr. and Mrs. John H. Gregory arrived from Baltimore, Mr. and Mrs. Edward H. Huxley from New York, Mr. and Mrs. Henry D. Jackson from Concord, N. H., who contacted Judson C. Dickerman from Washington, D. C., Mr. and Mrs. James Humphreys from Wilton, Conn., Mr. and Mrs. John C. Wolfe with their daughter, Anna Laurie, from New York, Gerard Swope and Franklin A. Park also from New York, the Clapp "twins" (Eugene H. and Gustavus) from Boston and Framingham, Mass., Lieutenant William B. Stork from Baltimore, Md., E. Laurence Hurd from Milton, Mass., and Mr. and Mrs. E. C. Alden from Hartford, Conn.

The hand shakes and buzzing felicitations were under way when, during the afternoon, Charles F. Tillinghast from Providence and Latimer W. Ballou from Woonsocket, R. I., appeared. Then followed Mr. and Mrs. Arthur L. Canfield from Somerville, N. J., Benjamin Adams from Philadelphia with Fred B. Cutter '98 from New York, then Walter S. Williams from North Dighton, Mass., and, finally, to round out the day's arrivals, Mr. and Mrs. George Defren of Newton, Mass., accompanied by their son-in-law, Mr. Franklin.

Sidney K. Clapp of Kingston, N. Y., arrived Saturday morning with his son, Richard, but was compelled to return to New York in the afternoon on account of pressing business. Judge and Mrs. Clifford B. Sanborn of Norwood, Mass., remained for dinner on Sunday. Sunday afternoon Mr. and Mrs. Albert Geiger of Boston called, and Al had with him a large framed photograph of the '95 Battalion cadet officers. He plans eventually to donate this prize picture to the class archives. Mr. and Mrs. James S. Smyser '96 of Quincy, Mass., also called on Sunday afternoon to renew old acquaintances. John Booth, son of Tommy Booth, with a friend abided with us Sunday night. Last but not least came Sammy P. Hunt of Manchester, N. H., our long lost scout, who remained throughout the reunion. Sam wanted at least to have a look-in, and finding the festivities so engrossing just could not leave until the end. There was an attendance of 49, including members and guests, which was gratifying in view of the existing times.

The outstanding features of the reunion were the place, delightfully situated and perfect in the appointments and service, and the ever present desire of a '95 class man to enjoy the fellowship of his mates. The ladies—well, we could not have a successful reunion without them!

The dust from travel having been removed, nearly everyone, including the ladies, started to tell the story of their

lives, for nearly all had met at previous reunions. The golf enthusiasts got down to business. Hurd, Jean Clapp, Jackson, Ballou, and Miss Wolfe were in the front lines. Swimming was not neglected, as Eddie and Frau Alden took their daily shivers religiously. Fred Cutter was somewhat sensitive to public bathing, but we found him attempting to give Miss Wolfe swimming instructions. The ladies followed the urge to play contract, but it is an unwritten law of the Class never to publish names or scores. Gerard Swope and Frank Park had a most peaceful rest, as the press reporters had difficulty in locating their whereabouts.

At our "State" dinner, Saturday night, we followed our reunion rule of seating by place cards, thereby separating the husbands and wives and presenting the long-looked-for opportunity to the benedicts and the unaccompanied men really to get acquainted. The green room, at the far end of the club house, was allotted to us as our headquarters. Here were exhibited the old class records and archives of the 'Nineties, as well as reunion photographs and mementos of the semi-decades of the past. Saturday evening after dinner all retired to the green room where Tommy Booth, our class President, welcomed everybody in a four-minute speech and then presented the ladies with boxes of sweets. Jackson exhibited the movie films of the 1930 reunion and the 1931 Gramatin, New York get-together. Johnny Moore, fresh from the seething atmosphere of the capital, was then presented. He very deftly and eloquently outlined a prospectus for the launching of a campaign for Canfield as President and Huxley as Vice-President of the United States. This discourse will bring to mind many pleasantries in years to come, to those who were fortunate enough to be present. The professional stage never experienced a better rehearsal. It was great. When Canfield and Huxley are elected, Johnny Moore will be Prime Minister. Nor were the stories drab. Ask Fred Cutter of New York to repeat them. Fred was great, too. The "assistant" to your Secretary, Mrs. Yoder, had opportunely checked his files without his knowledge, and discovered the press record of the Class Day exercises of June, 1895, which she contributed to the evening's entertainment.

Strange to say, all were accounted for at Sunday morning breakfast. The weather was perfect and all were eager to bask in the glorious sunshine. During the morning the celebrated scenario entitled "The '95 Mock Wedding" was conceived, written, and the cast arranged through the efforts of Mrs. Booth, Mrs. Wolfe, and Ned Huxley. The production was staged on the green following the class picture after dinner. The story runs as follows: Ned Huxley, as the Bishop of the County of Hunt, was perched on the top of a 12-foot sliding chute, garbed in the effects of one of the sleeping rooms, and at the appointed time slid down into position to marry groom Booth to the bride, Miss Wolfe. Yoder was the best man and Swope was the bride's father.

The flower girl was Jean Clapp, and Johnny Wolfe, the ring bearer. Frank Park was head usher. The bridesmaids were six in all. Things went well, although the bishop was late in descending as he had difficulty in lighting his cigar. The marriage proceeded but was suddenly interrupted by the dissenting female, Mrs. Booth, who finally swooned during her demand for alimony, and was then carried off in the Gregory ambulance, attended by Doctor Moore and nurse Mrs. Huxley. Hollywood has never presented a better show. It was great.

The class meeting was held following the scenario. Voted to have another reunion as soon as possible. Following supper, a round-table gathering was staged in the lobby of the club. Events of the past 40 years were brought to light. A sale of lead pencils finally netted the Ayer Community Memorial Hospital a neat sum. Canfield was auctioneer, Huxley was booster, Cutter, the end man. The "glee club" sang their parting songs at midnight and then sojourned through the lanes of the island by the light of the moon. Monday morning came too soon. The caravan turned toward Boston to attend the class luncheon at Hotel Kenmore and the Symphony Pop Concert in the evening.

Telegrams of regret and good wishes were received from Alfred Zapf of Orange, Calif., George W. Hayden of Winchester, Mass., and H. K. Barrows of Boston. Letters were received from Alfred P. Sloan, Jr., Richard G. B. Sheridan, Frank C. Schmitz, George A. Nichols, and Azel Ames, all of New York State, Duane L. Bliss, Jr., California, Albert W. Drake and Gordon L. Fowler of New Jersey, DeNise Burkhalter, Florida, George A. Cutter, Massachusetts, William E. Swift, Washington, D. C., and Herbert E. Davis, Bermuda.

The class luncheon at Hotel Kenmore, Boston, on Monday, June 3, was attended by Edwin C. Alden, Ben Adams, Charles M. Adams, Thomas B. Booth, Frank A. Bourne, Arthur L. Canfield, Percival M. Churchill, Gustavus Clapp, Arthur Dean, Judson C. Dickerman, Andrew D. Fuller, Albert Geiger, Walter A. Hall, Frank T. Miller, Ira A. Nay, Frank A. Park, Winthrop D. Parker, Fred L. Richards, Edward A. Tucker, Joseph E. Walworth, William H. Winkley, John C. Wolfe, and Luther K. Yoder.

The Pop Concert drew the following men: Ben Adams, Alden, Booth, Canfield, Fred Cutter '98, William T. Hall, Humphreys, Hunt, Miller, Nay, Park, Swope, Walter S. Williams, Wolfe, and Yoder. The Pop Concert was all that we had anticipated. We had a good time. Jerry and Frank gave those attending an opportunity to toast the '95 ladies assembled in the galleries. This feature was much enjoyed. Long live the memory of the events in connection with the Fortieth Reunion of the Class of 1895! Words are not adequate to express the appreciation of your Secretaries to those attending this reunion for their wholehearted participation in the program. We want to thank Fred Cutter for his

1895 Continued

faithful service in corraling the New York contingent. The reunion was a great success in every way. Long live '95!

Amidst the memories of our recent delightful gathering we pause to record the following: Walter J. Rickey, Managing Director of the Singer Manufacturing Company, Ltd., Singer, Clyde Bank, Scotland, had registered his intentions of attending our reunion at Osterville. While *en route* to the States, in the vicinity of Paris, France, he met with an automobile accident which finally resulted in his death on May 22. His body was brought to the States, and services were held at the First Reformed Church, Union Street, Schenectady, N. Y., on Thursday, June 13, at 2:30 P.M.

Walter was born in Athol, Mass. After graduation, he was draughtsman and assistant superintendent for the T. and B. Tool Company of Danbury, Conn. In 1898 he became general foreman of the switch department of the General Electric Company, at Schenectady. In 1930 he started service with the Singer Manufacturing Company at South Bend, Ind., from which location he was transferred to the directorship of the Scotland factory of that company. During the late War, his factory in Scotland became a controlled establishment, executing large contracts for the admiralty, war office, and the air ministry.

Frank Park, now Vice-President of the Singer Manufacturing Company, was Rickey's predecessor at the Scotland works. Park and Rickey had lately been together in Italy, where the Singer Company is erecting a new plant, occasioned by the high tariff placed by Italy on the importation of the Singer products to that country.

Walter F. Stevens, of Newton Upper Falls, Mass., passed away June 15 last. Walter died suddenly, having been stricken with bronchial pneumonia. He was a native of Roxbury, Mass. Following graduation, he became superintendent of supplies for the Boston Edison Company, which position he held for 33 years. Stevens was a member of the Boston City Club and the Dalhousie Lodge of Masons. He leaves his widow, Mrs. Sarah S. P. Stevens, and a son, Ezra F. Stevens. — Our records announce the death on July 10 of Helen Whyte McElwain (Mrs. William H.) who resided at 34½ Beacon Street, Boston, Mass. — The University of Minnesota advised our Alumni Office recently that Williston W. Greenwood, II, had passed on. No date or address was given.

John H. Gregory has completed his delightful home by the sea, at Harwichport, Mass., on the Cape, and has been summering there with his family. Your Secretary made a complete inspection of the premises and has pronounced them perfect.

The pages of history are dotted from time to time with the records of true heroism under most tragic happenings. Our Charles Tillinghast has a son, Charles F. Tillinghast, Jr., who accomplished the remarkable feat of bringing safely to port from mid-ocean, during a

very heavy storm, the ketch *Hamrab*, which had sailed from Newport, R. I., on June 8, bound for Bergen, Norway. It was the occasion of the Newport-Norway race, having six contestants. The *Hamrab*, a 55-foot ketch, encountered a hurricane which cost the lives of the skipper-owner, Robert Russel Ames, who was washed overboard, his son, Richard, the mate, and the only other son, a member of the crew, who were drowned in an attempt to rescue him, and left young Tillinghast with a crew of two to bring the boat to port. It is a tale of deep tragedy, but one that takes its place in the annals of the sea, tragic but lofty in heroism. Fortunately young Tillinghast, an undergraduate at Harvard, had always been interested in yachting and was a member of the crew of the yacht *Sea Witch* in the ocean race to Bermuda. He had training with the naval unit in connection with training courses aboard destroyers, which served him well under such trying circumstances. — LUTHER K. YODER, Secretary, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, Assistant Secretary, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

The time these notes are being prepared in the last week of August coincides with the doldrums of the year, when activity is at its lowest point and, consequently, there is little to report. The Secretary had an automobile trip to Canada the last of July to attend an Old Home Week celebration. The Assistant Secretary had a fishing trip in Maine in July and made his annual trip back home to Tennessee in August, as well as getting occasional short trips elsewhere. Jacobs has returned from his trip around the world and has promised a report for a later issue. Charlie Gibson received considerable newspaper publicity at the time of the exhibition of his rose garden at "Forty Steps" in Nahant, the middle of July. One evening was devoted entirely to a lawn *fête* which Charlie gave in honor of the officers and employees of the General Electric Company. The gardens were illuminated for the occasion and between 500 and 1,000 guests attended the entertainment, part of which was dancing by groups of dancers on the lawn.

A post card, dated August 15, was received from Myron Fuller telling of his sailing on that date with Mrs. Fuller for a two months' trip to Europe and Asia, to include Newfoundland, Copenhagen, Helsingfors, Leningrad, and Moscow. However, their chief objective was the two-week train trip from Moscow to Korea. It was just 21 years ago in August that the train on which they had reserved passage across Siberia from China was canceled on account of the World War. The train which preceded the one they had planned to take was unable to complete its journey and passengers were forced to take carriages to Sweden and Finland. Apparently they think that 21 years is long enough to wait before carrying out their old plans. Let us hope that nothing will prevent them from

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getting through this time. After reaching Korea they will journey across Japan and return by water all the way to New York via the Panama Canal. — CHARLES E. LOCKE, Secretary, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, Assistant Secretary, 24 Garden Street, Cambridge, Mass.

1898

The Class Secretary has been very remiss in the matter of news. The members rarely write about themselves, and what few items the Secretary has dug up have gotten by the deadline for several successive issues of *The Review*. Captain Paul F. Johnson sets the Secretary in his place in the letter which we quote verbatim: "It seems as if there is never any class news unless I write it and, as I have had considerable contact with classmates lately, I will tell you about it, you old 'Stick in the Mud.' Well, I think it was in January, Lester Gardner telephoned me from Pasadena. Unfortunately, I did not see him, because he was immediately leaving for some appointment, and the next day I had to go down to our shore place at Laguna Beach to look after some matter.

"Early in February, Roger Babson came here direct from Florida for a conference with clients (in Los Angeles, I mean) and talks to the Chamber of Commerce and Rotary Club. I saw him and talked with him at both meetings but had been unable to get in touch with him beforehand and could not have him out to the house as I hoped to. However, he went to San Francisco for similar meetings and some lectures at the University of California at Berkeley, while Mrs. Babson went to San Diego to visit a relative. Finding that he would have some free time when he returned to Los Angeles, Roger wired me, and on February 18 in the morning, I met him at the train and took him on a couple of calls. We then visited the Fox Studios at Westwood, had lunch there, and were shown around, visiting several sets. Will Rogers had invited him, but had left by plane for Chicago the previous day, leaving his regrets. Then, out to our house in Altadena, where Roger had a rest, interviewed a reporter from the *Christian Science Monitor* and our local editor of the *Pasadena Star-News*, my good friend Charlie Prisk, met my family, children, and grandchildren, had dinner with us at home; and then I took him to his train for Phoenix in the evening, joining Mrs. Babson at the station. It was a very enjoyable day for me, and I wish more of my classmates would spend a day or longer with me.

"On April 6 I took the yacht to San Diego with part of our family and some friends on board. I called up Everett N. Curtis the next morning, Sunday, and in the afternoon he and his daughter and wife called on us at the yacht, and later, though it was a rainy afternoon and storm brewing, Mrs. J. and I returned the call. The Curtis' house was in sight of the yacht, about a mile away. After the storm had blown over, I had to hurry

1898 Continued

back to Los Angeles harbor to get ready to come up here to Seattle, which I reached on May 18, after the usual rough passage up the coast. The yacht, *Seyelyn II*, left for Alaska with a charter party from San Francisco on the 26th, the first time she has ever gone anywhere without me as master, because the Captain has to have experience in handling hunting and fishing parties ashore and know about the camping places. She will be back here about the 25th.

"In the meantime, I have been plenty busy, and have driven once to Portland and flown there once. On June 7 I got some very beautiful moving pictures of the Rose Festival taken on the new 16 mm. Kodachrome film. On the 19th I called on Floyd A. Naramore '07, [then] Secretary of the Technology Club of Puget Sound, and was his luncheon guest at the College Club. There I met David J. Myers, architect, who has his office at 636 Central Building. The only other '98 man here whom the Alumni Association could give me the address of is Howard J. Benson and he has gone to Alaska on some mining business, so even though I am going to Alaska, I will probably not see him, except, maybe, in the fall. I forgot to mention that on the way north I stopped a couple of days in San Francisco and had a very enjoyable dinner and pleasant evening with Frank and Mrs. Coombs at their apartment, which they have had for the last 15 years.

"About July 1, we will take a family cruise to Alaska. My wife, her two sisters, our daughter and her husband, and Jackie, the oldest (nine) of their three children, are on the way up here by motor. We must get back here by August 4, for the yacht is again chartered by Detroit people for another cruise to Alaska to last until about September 15. During that time, some of us will tour Glacier National Park and the Canadian Rockies in our auto. I brought some of my moving-picture equipment, 16 mm. only, lantern slides, and about 80 natural-color slides here and in Portland. I have been taking a good many pictures lately in natural colors, with more or less success. I have some that were taken 29 years ago that are just as good, if not better. Through mutual friends, I expect to meet Governor Troy of Alaska, and it has been suggested that I show some of my pictures at the Governor's Mansion at Juneau. The Governor was in Altadena on a visit not long ago, but I was not there at the time. I intend to do a lot of picture taking this summer, as with a good First Mate, who was formerly my chief engineer and is now acting master, I will be relieved of much of the responsibility of handling the ship, which I have hitherto been burdened with.

"In September, I will lay the yacht up here or in Canada for a complete overhauling and may not take her South next winter. Last winter was the first time since November, 1932, that she has been South. We have had a lot of fun with that yacht and now I am ready to sell, when I can get a reasonable price. A very prominent movie actor is very much in love

with her and we may come to terms. He wanted to charter or buy this summer, but could not tell beforehand when he would finish the picture he was producing. If I do not sell, maybe I can bring her around to the East Coast for our Fortieth Reunion in 1938. All aboard, let's go, cast off the lines, starboard engine slow astern, stop her, slow ahead both engines, all clear now, full speed ahead." We hereby appoint Captain Paul Secretary of '98 for the Pacific Coast and as far east as he wishes, and we hope he brings the *Seyelyn II* around into the Atlantic for our Fortieth Reunion.

The following changes of address are suggestive although there is no specific news to back them up: Herbert L. Cobb, 238 North O'Keefe Street, Cassopolis, Mich.; Samuel A. Neidich, Neidich Process Company, Burlington, N. J.; George R. Anthony, Wolverine Tube Company, 1411 Central Avenue, Detroit, Mich.; Walter A. Cleaveland, Lustre Porcelain, Inc., 4103 East 100th Street, Cleveland, Ohio; Paul McJunkin, Wrightsville, Pa.; Gorham P. Stevens, 6 Rue Tsakalof, Athens, Greece; William Kelley, 656 North Calmenga Boulevard, Los Angeles, Calif.; Orin Crooker, Winter Park, Fla.; George H. Booth, Inspiration, Ariz.; Leon Alland, 111 East 56th Street, New York, N. Y.; John W. Fleet, 469 Eastern Parkway, Brooklyn, N. Y.; George O. Haskell, Route 4, Macon, Ga.; Captain Paul F. Johnson, Seattle Yacht Club, Seattle, Wash.; Frank E. Coombs, 1145 Pine Street, San Francisco, Calif.; Arthur C. Lawley, 291 C R.F.D. 7, Seattle, Wash.; Ernest F. Ayres, Ayres Book Shop, Boise, Idaho.

About a year ago, Leroy Peavey suffered a serious shock. He spent the winter in Florida and came back much improved so that he attended our class get-together at Plymouth last June. Roy's son spent last year as a graduate student at the Institute, specializing in food chemistry.

We have a post card from Charley Hurter with a picture of the Sahara Desert, where he appears to have been last February 20. He gives his permanent address as Wilmington Trust Company, Wilmington, Del. — We have a note of a radio address by our own Charley Winslow on "Doctors, Dollars, and Disease." He is still carrying on his campaign for the rationalization of medical practice.

We have a long clipping about an air index and we quote the last paragraph, which gives Lester Gardner's opinion: "Major Lester D. Gardner, Secretary of the Institute of Aeronautical Sciences, who is acting as technical director of the project, said that he knew of no existing index comparable in extent to the institute's file. Duplication of past classifications is avoided by including them as a part of the broader plan now in progress. He is emphatic in his opinion that this kind of work for the unemployed is not only providing them a living wage and giving them interesting work to do, but will have a permanent value long after the present period of unemployment has passed."

Lewis Seidensticker was in town last February and we had a pleasant call, the first in several years, from him and his daughter, Katharine, who has been Mrs. Lemon since July 23, 1934. Katharine had just completed her studies at M.I.T. and received her degree in the Department of Biology and Public Health. She was about to sail to join her husband in Sweden. Lewis was in town to see her off. Lewis is somewhat stouter than he used to be and he looks the part of President of the Atlantic Refining Company (sugar). His headquarters are at Montreal and he is pretty closely tied to business. We had a nice note from him at reunion time, regretting that he could not be with us. His sister, Helen, whom some of us remember, is the wife of Professor E. R. Hedrick of the Southern Branch of the University of California.

Arthur Porter's son, Nathaniel, B.S., University of Virginia, '33, spent the year 1933-1934 at the Harvard Business School and last year as a graduate student of Course VI at M.I.T.

The Saturday and Sunday before Alumni Day last June we held a joint get-together party with the Class of 1899 at the Samoset House, Plymouth. One object of the occasion was to attract the Alumni back to get them better acquainted with the Technology of today and to add to the success of our new plan of Alumni Day. We had a bully reunion but someone must think up a better plan of drawing the '98 Alumni to the Alumni Day exercises. Present at Plymouth were: Van Lansingh and Mrs. Lansingh, Joe Riley, Fred Dawes, Maurice Delano, Charlie Smith, George Treat, Elliott Barker, George Wright, John Robinson, Ernest Russ, Charley Wing, Ed Chapin, Arthur Blanchard, Roy Peavey, and his son. For '99 were: Ben Hinkleley ('98 also claims him), Arthur Brown, Mrs. Brown, Newell and Mrs. Newell, Miles Sherrill, George Priest, Stearns and Mrs. Stearns. 'Ninety-nine beat us on the number of ladies, but anyway, thanks to George Treat and a list of story tellers, including all of the above, we had one of the jolliest times imaginable.

Ernest Bragg wrote that his son, Leslie B. Bragg '25, and he were to attend Alumni Day, June 3, and he could not come to Plymouth. He had the right idea about Alumni Day anyway! — Roger Babson telegraphed: "Fiftieth reunion of my high school here in Gloucester where I give the address makes it impossible to cover Plymouth. Am very sorry. Please give my regards to all the Ninety-Eighters who are with you. I hope to make it next time."

The following reply to our reunion notice came from R. S. Willis: "Instead of sending you back the blank concerning class reunion this year, I'm giving myself the pleasure of sending you a more personal greeting while expressing my regret that I cannot be with you in June.

"Engagements will make it impossible for me to unite with '98, much as I should enjoy doing so. But may I request you to convey my greetings to the fellows, together with my best wishes for the

1898 Continued

success of the Reunion?—I note your request for news items for the Class Secretary. I am afraid that I have very little of interest to offer regarding myself. I am still in the export business and, if you have followed the record, you will know what we have been up against in that field. I have a daughter married and living in Kenilworth, Ill. She is Mrs. Newell S. Knight. She has endowed us with a grandson and granddaughter. My son is Dr. Raymond S. Willis, Jr., of the faculty of Princeton. He married Miss Margaret Osgood of Princeton."

R. H. Danforth, Professor at Case School in Cleveland, was busy with his own Commencement Exercises. His son was graduated this year from Harvard, *summa cum laude*. — Fred Twombly had been in Puerto Rico several weeks and did not return in time to join us. — ARTHUR A. BLANCHARD, *Secretary*, Room 4-160, M.I.T., Cambridge, Mass.

1900

Just received a letter from Chase in Chicago enclosing a chart of Industrial Plant Rehabilitation Reduced Costs-Increased Profits Covering Construction Valuations and Production. Also enclosed was a very interesting article in the May issue of *American Business*, entitled "Who Is To Blame For Excessive Sales Costs?" Much of the material on which the article is based was supplied by Chase. The Editor credits him with having built more industrial plants and mercantile buildings than any other one individual in the country.

We regret to report the death on May 15 of Albert C. Dart, III, in Denver, Colo. He had an operation for appendicitis, from which he was recovering rapidly, but he suffered a heart attack and passed away rather suddenly. The body was taken back to Rock Island and interred in the family lot with Masonic service. Dart's life in the West had thoroughly imbued him with its atmosphere, and one of his favorite pieces of music was "Home On The Range," which he loved so much that it was played during the funeral service. Practically all of Dart's life since graduation was spent in Colorado. For many years he ran an assay office at Idaho Springs. In recent years he has made his headquarters at Denver, being engaged in various mining activities. At one period he held the position of Professor of Metallurgy at the University of Wyoming, Laramie, Wyo., and prior to that he was in charge of some mining operations in that state at Grand Encampment, where there was a rather unusual occurrence of platinum in a copper ore.

Allen has it that there are 21 of the Class of 1900 listed in "Who's Who," quite a good percentage.

Everybody had a good time on the Thirty-Fifth Reunion at East Bay Lodge, Osterville, on the Cape. The members who brought their wives were: Bowditch, Atwood, Leach, Smith, Jouett, Russell, Hapgood, Price, Crowell, Kattelle, Draper, Stearns, Allen, Jackson, Tuck, and the Secretary. Coming alone

were: Ingalls, Richardson, Patch, Howe, Blair, Brigham, Fitch, Bugbee, Ziegler, Ellis, and Ben Johnson. Westcoat, Crowell, and Jouett had their daughters and Bill Angus came from Chicago with two guests. That's a pretty good showing for these times. Festivities started right away, as no one needed to be introduced. Thirty-five years between meetings didn't mean anything. The golfers got busy early and, although no tournament was scheduled, there were some close matches. Prominent among the golfers were: Crowell, Price, Ellis, Atwood, Fitch, Blair, Smith, Howe, Draper, Ziegler, Jackson, Jouett, and Brigham. In the three days the boys played Hyannisport, Oyster Harbors, and Wianno but no course records were broken, undoubtedly because the score cards were blurred by the rain. The first evening together jumped right off with hilarity in the shape of a beano game under the direction of indoor-sporter Fitch; first prize to Hawkeye Jouett, second to Crowell. Mrs. Jouett won first in the ladies and Mrs. Atwood, second. This event seemed to start things going with a bang and everyone felt at home. Later in the evening a few of the songsters gathered in an obscure place around one of the New York boys who had brought his music with him and Rogers' steps never heard anything like it. Saturday evening we listened to an entertainment conducted by Toastmaster Draper and all seemed to go well. Lots of credit should go to the boys who worked so hard to get the gang together. Allen did a great job in rounding them up, Bowditch in getting them all transported, and Fitch, Ziegler, and Draper in seeing that all were entertained. Big boy Crowell certainly did a good job extending the hospitalities of the Cape. This reunion goes down in history as one of the best ever. Sunday was get-away day to take part in the All-Tech Day, Monday, at the Institute.

Among those seen at the graduating exercises and around the grounds were: Jackson, Silverman, Fitch, Neall, Ziegler, Ingalls, Allen, and Everett. All agreed that Charlie Smith conducted himself bravely.

The dinner at night in Symphony Hall was a gala occasion. At the 1900 table were: Fitch, Morgan, Jackson, Bowditch, Westcoat, Silverman, Jouett, Ziegler, L. Smith, Walworth, Everett, and Johnson. It was quite impressive when the Class stood up and, at a signal from the President of Alumni, drank a toast to the wife of the President with her companion (a relative by marriage of the Class Secretary) in the balcony. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

As these notes are written, here am I on my vacation way up in New Hampshire at Peaceful Acres, Moose Mountain Road, not far from Hanover and Dartmouth College. Amidst such surroundings it is not easy to get one's thoughts back to the busy city, Technology, and class news. As a matter of fact, I find I

have not much to offer in the way of news as my store is about exhausted, but I hope you will fill out your questionnaires soon so that for the next Review I will have something to say. F. F. Dorsey writes: "Like the happy country, I have no history." Such is my condition.

The Class of '01 was conspicuous by its absence at the Alumni Reunion last June. I presume you are all planning to be present in 1936 when our Thirty-Fifth Reunion takes place so you did not make the effort to be present this year. However, we were not entirely absent, for Ralph C. Robinson was on from Schenectady and joined Theodore H. Taft and your Secretary at the '01 table at the banquet in Symphony Hall. — The class traveler, F. G. Clapp, was recently in Boston and called me on the telephone. — ROBERT L. WILLIAMS, *Secretary*, 109 Waban Hill Road North, Chestnut Hill, Mass.

1904

Well, another summer has passed along into history, and I hope it has been a pleasant one for all members of 1904 and that everybody had an enjoyable vacation.

Our Class was represented on Alumni Day, June 3, by a fair-sized delegation at the dinner at Symphony Hall, where Carle Hayward, Gus Munster, Gene Russell, Walter Whitmore, Dwight Fellows, Ralph Hayden, and yours truly gathered around the festive board and, at the close of the function, voted it an evening well spent.

The annual reunion was held, as usual, at East Bay Lodge, Osterville, on June 21, 22, and 23. It started with a lunch at the University Club which lasted from noon until 2:30, after which we wended our way down the Cape, arriving in good order in plenty of time for dinner. There were no outstanding incidents during the reunion, which was distinguished by the smallest attendance on record to date, but the faithful few who attended were well repaid and left for home on Sunday afternoon, fully convinced that our annual get-together is one of the outstanding Technological events of the year, and one which we cannot afford to miss as the years go by. Those present this year were: Cy Ferris, Mert Emerson, Gus Munster, General Holcombe, Jack Draper, Gene Russell, Bob Dennie, Dan Comstock, Harry Kendall, and the Secretary. Dwight Fellows dropped in Sunday morning for a few minutes *en route* for Provincetown. For the next two items I am indebted to Professor Locke: Walter E. Hadley has been promoted from assistant superintendent of the Gary Plant of the Illinois Steel Company to the post of General Superintendent, following 17 years' service in the former position. — Guy C. Riddell left on the *Normandie*, June 22, for two months in Europe on professional business. He will be in Moscow on a fourth trip to Russia, from about July 15 to August 20. The rest of the time will be spent in England, Germany, and Rumania. He returns via the Far East in September for examinations in California and Mexico.

1904 Continued

The following clipping was taken from the New York *Herald Tribune* of May 19: "Mr. and Mrs. Mark G. Magnuson, of 7 Gracie Square, announce the engagement of their daughter, Miss Elizabeth Magnuson, to Mr. Irving H. Bull of this city. Miss Magnuson attended the Baldwin School, Beaver College, the Archæological School at the University of Chicago, and passed a year in travel and study in Europe. She is a member of the Junior League. Mr. Bull is the son of Mr. and Mrs. Irving C. Bull, of Middletown, N. Y. He was graduated in 1928 from Yale College, in 1931 from the Harvard Law School, and received the Master of Law degree from Columbia University the following year. He is with Charles A. Roberts, lawyer, of this city."

Don Galusha announces the marriage of his daughter, Elizabeth Richards, to Mr. James P. Tanguay, on Sunday, July 7, at Portland, Maine.

Some time ago I received one of those class rarities, namely a letter from a classmate, this time from H. K. Richardson and as it gives some information not included in the clipping mentioned, I am including his letter in full: "The enclosed clipping from the Newark *Evening News* of May 15, may interest you as class news. Henry K. Richardson and Frank A. Newcombe, engineers of the Westinghouse Lamp Company, Bloomfield, were given \$300 today as an award for the outstanding accomplishment of 1934. . . . Richardson and Newcombe developed a platinum-alloy die or "funnel" through which molten glass flows to form the insulator for lamps. In the past, the porcelain dies used have been worn away rapidly by the abrasive effect of the molten glass. The new invention is designed to withstand this effect and to speed production. The need for constant temperature adjustments in making the lamps has been reduced. Richardson is ceramic engineer at the Bloomfield plant and lives at 41 Yanticaw Avenue, Bloomfield. Newcombe is division engineer at the plant in Belleville and lives at 165 Alexander Avenue, Nutley."

"The process was outlined scientifically in a paper before the Ceramic Society, Glass Division, at the Cincinnati meeting, February, 1934, and published in full in the *Journal of the American Ceramic Society*, August, 1934. The development has been an interesting one, which we think will have quite a far-reaching use in regular glass making. — Sorry not to have been able to be in Boston in early June to see you all; wife and car were there, but I had to stay home. Expect to be around the old town the last two weeks of August — may have a chance to say 'how-de-do.'"

Charlie Haynes is now associated with Binney and Smith, 41 East 42d Street, New York City, manufacturers of carbon black, which Charlie informs me is the most finely divided substance in the world. Charlie was in Boston last May and we had a very pleasant evening together at the Statler, during the course of which he told me that if all the particles contained in a pound of carbon black

were placed side by side they would encircle the earth 34 times and the strip of black resulting would be only one-hundredth of an inch wide. I agree that carbon black is finely divided, but do not care to undertake the job of putting those particles side by side, and I certainly have a high regard for Charlie's ability to figure it out.

I have recently been informed that Kenneth M. Baum died in the year 1929, but have no further information. — Well, no more at present, but I hope to give you more news in a subsequent issue. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 8 Rosemary Street, Chevy Chase, Md.

1906

On previous occasions we have acknowledged the helpfulness of Professor Locke of the Alumni Association in furnishing items for this column. Here is another one to his credit: "Ray Barber was in Boston over Sunday, May 26, spending the day with Fred Abbott '05 in Winchester. He also contacted Lawrie Allen '07. Ray had been on an extended mining inspection trip to South America during which he flew 8,000 miles. He returned to New York to confer with the officers of the company, and there he was met by Mrs. Barber, who had come on from their home in Palo Alto. He had two or three days' business left in New York, and then he and Mrs. Barber were flying back to California, where Ray was to look over some of his gold-placer work before returning to South America, taking Mrs. Barber along with him."

Ten loyal members of the Class attended the first Alumni Day on June 3. The largest group appeared at the banquet in Symphony Hall and consisted of Ralph Clarke, Sherman Chase, Philbrick, Mowry, W. G. Abbott, Abe Sherman, Nash, McGinnis, Rowe, and Kidder. In addition, Mrs. Philbrick and Mrs. Rowe were interested spectators in the balcony. The Secretary attended Dr. Jackson's luncheon and Abe Sherman attended President Compton's luncheon as Abe has the distinction of being the local representative, or whatever you call it, for the Institute in Fitchburg and vicinity. More honor to our illustrious Class!

We submit tardy apologies to Jack Norton. Early in the year he had occasion to spend several days in Boston and invited the Secretary to luncheon at the Statler. Jack came to Boston to get in touch with a research man working under his direction at the Institute and also to give a talk before the Boston Bug Club. This is an organization of bacteriologists. Jack is with the Upjohn Company at Kalamazoo, Mich., and apparently finds his present assignment an agreeable change from the municipal job in Detroit. We are particularly concerned about giving Jack due credit in this issue for we realize it would be a very undesirable precedent to establish had Jack's visit not received proper publicity under the circumstances.

The Boston *Herald* of February 27 included a list of the 17 Boston architects appointed to prepare plans for the \$5,000,000 South Boston Federal Housing Project. Our classmate, Mrs. Johnson O'Connor, was named by Secretary Ickes as one of the members of the committee.

The Secretary regrets to report the death of two classmates; namely, Bob Hursh and Miss L. C. Smith. The following obituary of Bob is taken from the Boston *Herald* of May 15: "Robert Hursh of New York, a native of Cambridge, who was graduated from M.I.T. in 1906 and was well known as a mining and metallurgical engineer, died suddenly in New York, Monday, according to word received here last night. For the past 28 years he had been associated with the New Jersey Zinc Company. Surviving him are his widow, Mrs. Ethel Halliday Hursh, two brothers, and a sister. He was a member of the American Institute of Mining and Metallurgical Engineers. The body will arrive here today and burial will be at Mount Auburn cemetery, Cambridge, tomorrow." The Secretary represented the Class at the funeral service, held on May 16 at Mount Auburn.

The Boston *Herald* of August 10 included the following in connection with the death of Miss Smith: "Miss Lillie Collamore Smith, director of domestic science in the Brookline public schools and one of the few women graduates of the M.I.T., died yesterday following a prolonged illness. She was 62. Funeral services will be held Monday afternoon at the Eastman funeral home, 896 Beacon Street, Boston. Miss Smith's nearest relative is a niece, who lives in New York. Miss Smith had been identified with the Brookline schools for more than 30 years, most of that time as director of domestic science activities. She was also director of the junior Red Cross work in the schools of the town. She lived at Pelham Hall, 1284 Beacon Street, Brookline. She was graduated from Technology in 1906 after she had completed a series of courses in advanced science work at the institution. She held several degrees and was an able instructor. Miss Smith had been in ill health since last spring when she was injured in an automobile accident in Newton." — JAMES W. KIDDER, *Secretary*, Room 1001, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills, Mass.

1907

Our Class was represented at the festivities in Symphony Hall, Boston, on Alumni Day, June 3, by 18 men, a larger number than appeared for any class of about our age, and most of the 18 were also in attendance at some of the activities at the Institute during the day. The very congenial group occupying one and eight-tenths tables at the evening dinner was composed of Charlie Allen, Lawrence Allen, Walter Bigelow, Allan Cullimore, Ralph Hudson, Tom Keeling, Ed Lee, Frank MacGregor, Milton MacGregor, Alexander Macomber, Ed Moreland (for the sake of accuracy it should be

1907 Continued

stated that Ed's "tenth" of a table was at the head table, where, as the President-elect of the Alumni Association and as the new Head of the Department of Electrical Engineering, he very properly, though perspiring, belonged. Bryant Nichols, O. L. Peabody, Don Robbins, Bob Rand, Ed Sargent, Albert Wiggin, and Harold Wonson. For Cullimore, Keeling, and Sargent it was their first reunion appearance since 1907, and for Wiggin it was a first attendance for many years, so the rest of us who are pretty much stand-bys at class and Tech gatherings were particularly glad to welcome and fraternize with these men from Newark, N. J., Nashville, Tenn., Albany, N. Y., and Great Falls, Mont., respectively. Keeling's son was graduated from the Institute on the following day.

In sending greetings in connection with this Alumni Day, Bob Albrow, whose permanent address is 377 St. James Avenue, Springfield, Mass., stated that he had recently become senior engineer at Chicopee, Mass., and could not get away to attend the reunion. — Charlie Allen associated with Ed Squire of our Class to form the Allen-Squire Company, shoe manufacturers, with factories at Spencer, Mass., reports a thriving business. Ed especially is in charge of the production and factory management of the plant, where about 750 employees turn out 10,000 pairs of shoes a day. Charlie particularly looks after finances, sales, and purchase of leather.

Cecil F. Baker is with the United States Department of Interior Natural Park Service, 300 Keeline Building, Omaha, Neb. — Charles E. Baker is construction superintendent for Trimount Dredging Company, of which Herbert Gerrish '08 is the head. The Boston office is at 10 State Street, but Baker is rarely there. — Walter Bigelow spent last winter in looking after the structural part of the design of the \$4,000,000 sewage-disposal plant for Washington, D. C., in the office of Metcalf and Eddy, Boston. Soon after attending the Tech reunion on June 3, Walter was taken seriously ill, surgical work being necessary, and at the time of writing these notes (August 19) is still far from well. His home address is 19 Fairfax Street, West Newton, Mass.

The outstanding development of the spring and early summer of 1935 in the sporting world in the vicinity of Boston was the construction and completion in record time, of the Suffolk Downs horse-racing track and buildings in East Boston. Two men of our Class had a very direct part in the construction of one of the building units, as described by the following article from the Boston *Herald* of Sunday, July 14: "The club house of the Suffolk Downs race track, the largest and most elaborate in the country, was built in the remarkable time of six weeks by Temple and Crane, Inc., construction managers, with offices at 80 Federal Street, Boston. The owners recognized that this was no ordinary building job but required the careful selection of the organization best adapted and equipped to produce the desired result.

"The building is of structural-steel frame with concrete floors, three stories high, 250 feet long, and 106 feet wide. The exterior walls are of cinder block, finished in buff, California stucco and trimmed with cast stone. Approaching from the front side, away from the track, it is like a beautiful resort hotel and a big one. Two large stone images of Pegasus supporting 60-foot flag poles with national and club colors flying offer the significant suggestion of the real purpose of the structure. A broad plaza extends the whole length, with ornamental red tile floor and three large recesses inviting one into the loggia and then on into the foyer of the lower floor. Here, extending down the center, are some 60 pari-mutuel betting windows offering every convenience for the betting transactions. In fact, all over the building on every floor are found plenty of these windows for the convenience of patrons.

"On the lower floor are found check rooms, retiring rooms, a passenger elevator, and a broad stairway to the second or main floor. Most of the space here is given over to the main lounge, about 120 feet long and 75 feet wide, a truly beautiful room, completely walled and beamed with light oak paneling and an ornamental plaster ceiling. A black and gold marble fireplace gives the room an air of luxury and comfort. A dining room, kitchen, retiring rooms are all found on this floor with every convenience. There is also a barroom, opening directly on the track balcony, furnished in colorful mahogany with blue glass mirrors.

"On the third floor is located a large private lounge, finished in American walnut, beautifully grained, and with elaborate furnishings, hangings, and floor coverings. Again we find here kitchen facilities for serving of meals, a cocktail bar, and retiring rooms. A suite of office rooms is on this floor, the president's suite being paneled in walnut, a ladies' rest room paneled in bird's-eye maple and daintily furnished.

"The toilet rooms throughout the building are completely tiled, the floors with red and black and walls in white with black borders and ultra-modern fixtures. — Indirect lighting prevails through the building from handsome ceiling fixtures. The sashes are of steel with casement openings.

"On the track side, a concrete concourse slopes easily down to the track itself on the first floor level. Above, on the second and third floors, overhanging balconies, running the entire length of the building, give a clear view of the track and the finish line.

"The construction of this club house in the short time was an incredible performance and reflects great credit upon the organization and managing ability of the entire Temple and Crane organization. The contract was awarded so work could start on May 27, concrete foundations were poured on May 28, structural steel was erected on June 11, the outside walls were up, roof tight, and plastering started on June 23. It was completed in its entirety on July 9 for the opening on the 10th.

"About 250 men were employed during the height of the job," said Mr. Temple. "It was very largely a question of organization, to gather together not only good men for their respective functions but also those who would team up, carry everything along smoothly and exactly on schedule. We had the complete coöperation of Mark Linenthal, the engineer of the Suffolk Downs track, his architects and organization, in field and office, without which the result would have been impossible. For sub-contractors and material dealers, it was necessary to find those with the resources to do a quick job and make prompt deliveries as required. There was no time to canvass the market, we simply turned to those we could best depend on and, with their assurance to come through, placed orders here and there. Some were working under Mr. Crane's direction almost continually in our Boston office, over the first weekend, Saturday and Sunday, night and day, for countless items had to be scheduled and purchased at almost the same instant.

"Now it is over, delivery of the completed building was made on time, everyone in our organization came through 100 %, and the result is to the credit of every single man who worked on the job and every supply house and each sub-contractor. We were just lucky in picking the right fellows, I guess, because to tell you the truth, if we stopped to look at the job as a whole it did look almost impossible, but, viewing only one detail at a time, we knew it could be done."

"The Temple and Crane organization has as its President, Edward H. Temple, Jr., of Boston, and Treasurer, George A. Crane of Milton. Both have been giving their personal attention to every detail of the work for the past six weeks. The company is largely known as builders of industrial and commercial structures through the New England states."

Knowing the peace-loving nature of Bebe Hosmer, we were especially interested in the following item taken from the Boston *Traveler* of August 7: "Charged with assault and battery on Herbert B. Hosmer, Concord ERA supervisor, who showed up in court with a black eye and a scratched face, Charles A. Knowles, Concord ERA worker, pleaded not guilty today and was held in \$50 on a continuance until tomorrow. The trouble between the men was reported to have started during work on the town forest project. Knowles is a college graduate and an electrical engineer."

Flint Elder is chief metallurgist with the American Steel and Wire Company, Rockefeller Building, Cleveland, Ohio. — E. A. Miner writes: "After the New Deal was inaugurated I thought I was on the unemployment list for the rest of my life, but six months later I managed to get in here at the New York Navy Yard. Am living at Navy Y.M.C.A., Sands Street, Brooklyn, N. Y." — One of the sons of the Class Secretary, Edward, who was graduated from Newton (Mass.) High School in 1935, was fortunate in getting work with a real opportunity

1907 Continued

ahead at Cambridge with Riverside Boiler Works of which John Nicholl of our Class is President and Treasurer. — Don Robbins is Vice-President of Associated Depositors, Inc., at 49 Federal Street, Boston, distributors of National Unit Fund, an investment trust proposition. — Last June Carl Trauerman was reelected President of the Mining Association of Montana. — A letter from Harry Moody written on May 27 tells of a telephone conversation he had with Erle Whitney of our Class who is assistant district manager of the General Electric Company organization in Cleveland, Ohio, where he has been located for many years.

And now to climax these notes we have a most interesting letter from Samuel R. T. Very, IV, written as the result of an effort on the part of the Secretary to learn something of the doings of this man from whom we had not heard since graduation. How a letter like this does gladden the heart of a class Secretary! Sam's mailing address is Warehouse Point, Conn.: "Lisbon, Portugal, 24 June 1935. Dear Saint Nick: If a class secretary isn't one, who is?"

"Your letter requesting news from the sphynx would melt a stonier heart than mine, yet what news can I give you of interest? I have kidnaped no babies; I have developed no silver-nitrate finger-print tests; I have invented no visceral pump to perpetuate the guts of any M.I.T. man. Confessing to being one of those indigent idle I read about now and then, I admit I prefer to be; and so I am living abroad, and have been, three years, here and there in the Mediterranean, on unknown islands in the Atlantic, and now in Lusitania.

"Twenty-eight years is a long sentence for committing architecture, and naturally, a mild offender like me who never set the world on fire by my crimes, begins to itch for freedom, long before its end, especially if it entails solitary confinement, as my sentence did. So, I first tried male partners; then, a wife, who, being a writer linguistically inclined, soon taught me the charm of travel and of research for journalistic ends. Since 1932 we have published over 50 articles jointly over the pen name Gest Very, in periodicals and journals of the old and new world, in five languages. We just mailed off another to your country today, the result of our last year's study of one of the most remarkable languages in the world, which is spoken by whistling by goatherds living in the mountains of one of the Canary Islands.

"At present we are both on the staff of the New York *Herald*, European Edition, and we are about to leave Lisbon in order to poke into the various nooks and corners of this intriguing country, so little known to Americans traveling in Europe. In the north we shall find two types of play land, forested country, intriguing to anglers, and watering places. Nearer, is that vast region of vineyards, producing port wine, and sheep-grazing hills. Around Lisbon is the Coast of the Sun, sparkling with popular watering re-

sorts, some of fashion, some for stodgy old fogies with varicose veins and big bay windows, some for gouty dowagers seeking internal elixirs of life, some for the country-minded with poetic souls like Byron who called one of them 'an earthly paradise.' Sintra, if you recall your 'Childe Harold.'

"To the south of us we shall visit the Portuguese center of the sardine trade, Setubal, and learn why it is that huge, double cans of the most delicious sardines that ever watered your mouth sell at retail here for 10 Roosevelt cents only. And then, when the trees are in fruit, we shall see swine fed in the vast cork forests of the interior, and bottle corks peeled, and bed mattresses shaved, and linoleum and grease-proof flooring recovered from the other processes of the cork tree industry.

"Would you like to know how many millions one must save before living the life of Riley over here on this side of the Atlantic, in dozens of the places we have been? Well, with the dollar worth 59.2 cents, one can count on a maximum of \$2.00 a day for full pension in a clean, comfortable city hotel, whose cuisine is as good as any in Boston.

"Best regards to all." — BRYANT NICHOLS, Secretary, 126 Charles Street, Auburndale, Mass. HAROLD S. WILSON, Assistant Secretary, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

We quote below a belated letter (dated March 19) from Paul E. Fernald, Tucson, Ariz., which has just come to our attention:

"I was glad to see a little of the 'dead Class' of 1908, in the March issue of the Review. I have made my headquarters in this fine little southwestern city since 1910. All my work has been on engineering lines. As field engineer, I put in part of the international boundary between the United States and Mexico. I have mined and shipped lead, silver, and gold ores. Am now in my fifth year as City Engineer of Tucson, with interesting experience in paving streets, sanitary sewer control, and other city problems. — I enjoy The Review very much."

Dr. Charles A. Kraus has been awarded the Willard Gibbs medal of the Chicago section of the American Chemical Society for 1935, bestowed in recognition of his research in the theory of solutions. Dr. Kraus is Professor of chemistry at Brown University.

Willard F. Rockwell, President of the Timken Silent Automatic Corporation, addressed the chief executives of the company in Boston at the annual New England sales meeting early this year.

We have the following changes of address to report: Julian H. H. Harwood, 202 Rinconada Avenue, Palo Alto, Calif.; Hugo F. Kuehne, 6006 33rd Street, Washington, D. C.; John H. Locke, Villanova, Pa.; Robert B. Todd, P. O. Box 213, Rye Beach, N. H. — H. LESTON CARTER, Secretary, 185 Franklin Street, Boston, Mass.

1909

As we start another season of class notes, my greetings to you Classmates, far and near! Whenever you come to Boston, do drop in and see me, for a few minutes anyway; and if you are so situated that you cannot do that, I would certainly appreciate receiving a letter from you.

George Wallis stopped at my office while on his way to Wenham, Mass., to join his family for a few days' vacation. He tells me that his elder daughter, Elizabeth, was graduated from Smith College last June. Two or three days later Austin Keables came in to make his annual call, which I always appreciate. Austin is still located in Beacon, N. Y.

Just too late to be included in the notes of the July issue, there appeared in the Boston *Transcript* of June 8 the announcement of the engagement of Bee Hutchinson's daughter, Thayer, to William D. Laurie, Jr., of Gross Pointe, Mich. Thayer has just finished her sophomore year at Smith College.

On Milk Street recently I met John Willard, who said that while on a recent trip in the Middle West, he and Charles Fletcher happened to be on the same train and so had a nice visit together. Fletcher is living in Chicago, and is engaged in making investigations and reports on properties for investment. His brother, Matthew, is head of the Canal Construction Company of Memphis, Tenn.

The July 4 issue of the *Kinematograph Weekly* of London, carried a nice write-up of John E. Otterson, the new President of Paramount Pictures, Inc. This article stated in part that Otterson was graduated from the U. S. Naval Academy in 1904 and from the M.I.T. in 1909. In 1915 he retired from the Navy as a naval constructor with the rank of lieutenant. "For the next six years he was with the Winchester Repeating Arms Company, and was President at the time he left the Company to join the Winchester Simmons Company as President. In 1924 he became associated with the International Western Electric Company, of which he was General Commercial Manager, when three years later he was made Director and Vice-President of the Electrical Research Products, Inc." In 1928 he became President of the latter company.

You will all be sorry to learn of the death on August 19 of Bob Smith, dearly loved by all with whom he came in contact, as witnessed by the large gathering which filled the Church of the Unity in Winchendon, Mass., on Wednesday, August 21. The funeral service was conducted by the Reverend Frank B. Crandall of Athol, Grand Chaplain of the Royal Arch Masons of Massachusetts, of which organization Bob was the Grand Scribe.

Robert Lewis Smith was born in Jamaica Plain, Mass., September 18, 1887, the son of Lewis and Kate (Hall) Smith. He prepared at the Mechanic Arts High School, Boston, Mass., and was graduated from the M.I.T. in 1909 in the

1909 Continued

Department of Mechanical Engineering. For a year after graduation he was an assistant in Course II. In 1910 he entered the employ of Baxter D. Whitney, Winchendon, Mass. When the company was later incorporated under the firm name of Baxter D. Whitney and Sons, Inc., Bob became a director and general manager of the concern. Taking part in the civic life of Winchendon, he was serving the town as Selectman at the time of his death.

He was very much interested in Masonic work, being affiliated with the Artisan Lodge, A.F. and A.M., of Winchendon; North Star Chapter of Royal Arch Masons, Winchendon, of which he was a past High Priest; Ivanhoe Commandery of Gardner, Mass.; Aleppo Temple of the Mystic Shrine, Boston.

Both Bob and his wife have been regular attendants for many years at the reunion meetings of the Class of 1909. Last year their eldest daughter, Edith, now a senior at Simmons College, Boston, came with her father and mother. Besides his wife and Edith, he leaves two younger daughters, Elizabeth and Janet.

Bob's quiet manner and cheery smile endeared him to all of us. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries*: PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

1910

The Silver Anniversary of the Class of 1910 is now history and we shall endeavor to live the events over in retrospect so that those who were unable to attend may share such enjoyment as they can by this review.

Friday morning, May 31, did not break with very cheerful promise for weather. There was a tendency to showers and a heavy fog. Nevertheless, at 9:30 in the lounge of the University Club, various classmates began to arrive. By 11 o'clock, about 14 had collected, discoursing on old times and their present positions in life.

By this time a start was made for South Boston, where John Gray was waiting with a power boat which would have accommodated three times the number on hand. The first car arrived at the landing where John was waiting for us; the second car, a large 1935 model, seemed to have been delayed. Finally, Larry Hemmenway was discovered in a filling station across from the landing trying to get a gallon of gas. It seems that the owner of this new car had been advised in Pennsylvania that the car would run without gas in Boston fog.

As soon as we had embarked, we were introduced to John's skipper, the lines were cast off, and we were headed out in the harbor. It made no difference which way we were headed, the scenery was the same — all hidden by fog. We met the New York boat arriving in the harbor six hours late carrying three classmates who would have been with us if it had not been for the weather. The food and refreshments had been supplied in plenty and were partaken of freely. One group

assumed command of the aft deck, and regaled the others with songs, ditties, and stories. Another group not so familiar with ocean boating spent their time in the pilot house where they tried to learn navigation and to catch such glimpses of the harbor scenery as were fitfully available. There was no question but what it was a most enjoyable trip and our appreciation to John Gray in making this trip possible is most sincere and heartfelt.

At the end of the afternoon, classmates from the boat trip and from other parts of the country and city began to drift into the University Club, more or less prepared for the evening's program. However, complete facilities for the celebration had been made available for all, and by dinner time, under the leadership of Jim Cox and Hal Manson, 73 of us were ready for anything, even to such banquets as were held in the Tech Union in our freshman year. We had a glorious dinner from soup to nuts. Interruptions were frequent, many coming from members of the senior class (1935), who were having their banquet in an adjoining room. It seems that they called upon us to find out how it should be done, or perhaps to note what was ahead of them.

President Compton and Dean Bush, who were guests of the Class of 1935, left them long enough to bring us greetings and to join a more hilarious atmosphere than that which was present with the seniors. They soon returned to the senior banquet after listening to our roll call and our personal report. Whether they found the dignity of our banquet better or worse than that of the seniors, we could only surmise. After the dinner had been served, we had a few songs with Harry Hale at the piano, also several reels of moving pictures. During the pictures there was a renewal of acquaintances and stimulation of old memories. The evening broke up with the men joining into smaller groups and visiting around. Those who were not staying with classmates put up in the very comfortable rooms at the University Club.

On Saturday, about 30 of the Class went down to the Hotel Mayflower, about six miles below Plymouth, in automobiles, varying from ten days old to ten years old. After luncheon the group broke up into golf foursomes, tennis matches, strollers, loafers, and spectators. The most amazing and spectacular part of our stay at the Mayflower was the energy and endurance shown by Jack Babcock, playing tennis. He was able to stand up against all comers from Phil Taylor to Bert Wohlge-muth's son, who was still in training from last year's exploits as guard on the University of Pittsburgh's football team. Another son present was G. G. Holbrook's son, who expects to enter the Institute this fall.

There were continual arrivals and departures during the three days, with a nucleus of 20 or more present throughout. A high point of this outing was on Saturday evening when, grouped around the open fire (and did the fire feel good!), with Arthur Curtis at the piano and singing led by able volunteers, the time

was filled with memories, stories, and bridge until the wee small hours. The weather was perfect during the entire outing.

Monday, when the crowd returned from the Mayflower, they broke up into small groups and visited the various departments at the Institute, renewing old acquaintances of other classes, inspecting the new Institute buildings which many had seen for the first time, and becoming acquainted again with the members of the faculty.

The All-Technology Banquet was held at Symphony Hall, our Class filling three tables, 31 of us in all, sharing the place of honor in the hall with the Class of '85. This banquet was a dignified and most pleasant, formal climax to the Reunion, marred only by the necessity of farewells.

At an extremely informal election, called and presided over by your Secretary in the lobby of the Mayflower hotel, Sunday afternoon, Frank Bell, Santa Fe Building, Dallas, Texas, was reelected Class President for another five years, and Herb Cleverdon, 46 Cornhill, Boston, was elected to take over the Secretary's job, of which your present Secretary desired to be relieved. Since neither Frank nor Herb was present at the moment of the meeting, we are trusting that they will feel inspired to take care of us through to the end of another five years.

Those present at the different events expressed appreciation for the work of various committees in arranging the different events of the reunion and coordinating the whole affair. The following attended one or more of the events: boat trip, 14; class dinner, 71; outing, 38; All-Tech Banquet, 31. The roll call follows: R. H. Abbe, J. G. Ahlers, A. Allen, H. S. Arnold, J. Avery, J. B. Babcock, 3d, A. J. Beach, C. R. Benton, R. S. Bicknell, H. D. Billings, D. Brown, Jr., R. F. Burnett, P. W. Burnham, M. S. Chapin, L. B. Chapman, J. W. Cilley, D. Clapp, H. S. Cleverdon, S. K. Cohen, J. S. Cox, O. J. Crommett, A. Curtis, A. H. Curtis, L. Davis, R. E. Dillon, C. F. Doble, W. D. Everett, A. L. Fabens, R. O. Fernandez, K. D. Fernstrom, H. W. Flickinger, R. E. Gage, J. M. Gray, C. E. Greene, H. A. Hale, Jr., G. N. Harcourt, L. T. Hemmenway, S. L. Henderson, C. C. Hield, G. G. Holbrook and son, R. W. Horne, A. K. Huckins, R. W. Jacoby, G. James, W. J. Keefe, E. B. Kiely, G. P. Lunt, H. C. Manson, G. L. Mylchreest, W. I. O'Hearn, F. W. Osborn, D. Peabody, H. C. Perley, E. W. Pilling, F. J. Pitcher, R. A. D. Preston, H. G. Reynolds, O. R. Rietschlin, F. P. Sargeant, C. H. Shaw, C. J. Sittinger, J. S. Sneddon, W. T. Spalding, H. E. Stump, P. W. Taylor, P. E. Thompson, W. R. Waldo, C. W. Wallour, L. W. Waters, J. P. Wentworth, J. T. Whitney, H. R. Wilbur, D. V. Williamson, B. S. Wohlge-muth and son. — DUDLEY CLAPP, *Retiring Secretary*, 40 Water Street, East Cambridge, Mass.

1911

When these notes appear it will mark the 28th anniversary of the entrance of the Class of 1911 to the M.I.T. The world

1911 Continued

has undergone many changes since the fall of 1907, but as a unified class we have carried on, and our Silver Anniversary of graduation will be celebrated on the first week-end of June, 1936, at a place to be announced. Right now, however, be sure those dates — June 5-9 — are indelibly marked on your engagement calendars.

We had lost track of Johnnie Bigelow, IV, but this summer his name popped up in the news and we learn that he has returned to his native city, Marlboro, Mass., where he is technical supervisor and architect for the local ERA public building work. They are about to have a city election in Marlboro and Johnnie has announced his candidacy for Mayor. Good luck, John!

Phil Caldwell, I, dropped in at Hotel Bancroft in Worcester at the end of July to attend a meeting of the New England Folding Paper Box Manufacturers' Association, and he and yours truly had a fine renewal of acquaintance. Phil is with the Robertson Paper Box Company at Montville, Conn., and lives in Norwich. He has two boys, 14 and 11, by his first wife, who died in 1930. He married again in 1932 and now has a young son born this last June. Good for you, Phil!

Carl Ell, I, Vice-President and Dean of Engineering at Northeastern University, Boston, was tendered a dinner at the University Club in the Hub last June by members of the Faculty Club of his institution in recognition of his completion of a quarter of a century at the university. At the dinner which followed a reception, the guest of honor was presented a fitted traveling bag. Surely a well-deserved recognition of work well done, Carl!

George Forristall, II, formerly head of the Houston Shopping News at Houston, Texas, now heads Retail Sale Promotion Service in that city. When I was Alumni Secretary, I used to enjoy immensely my Texas trips, when George and his wife and fine family would entertain me royally.

Bancroft Hill, I, writes from Baltimore that he has been made Vice-President of the Baltimore Transit Company, performing much the same duties as he has for the past ten years as valuation engineer of the former United Railways and Electric Company. "The urban transportation business is going through a period of change and the work is very interesting," he writes. "I still feel quite youthful except when I read about certain professors and realize that at best I am probably slightly older than they are. I sometimes build outboard speed boats and run them, so that maybe I am as youthful as I feel." Good luck, Ban, in your new position!

The brevity of these notes shows you that the summer has not brought many letters from classmates, but with the coming of cooler weather and the interest bound to be shown in our forthcoming Twenty-Fifth Reunion, I feel sure that this volume of 1911 notes will become one of our most interesting and newsiest to date. In addition to my promotional duties here at The Bancroft, I am now also Assistant Manager, having been ele-

vated to this rank on June 1. When in Worcester drop in, just as Jack and Mabel Herlihy and their two oldest children did early in August. Young Jack, by the way, enters Tech this fall. Mrs. Denison and our three youngsters have joined me here from Yarmouth, Maine, and we now reside at 4 Kilby Street, Worcester.

In addition to the usual admonition: Write to Dennie! let me close by again reminding you that the reunion dates are June 5-9, 1936. — ORVILLE B. DENISON, Secretary, Hotel Bancroft, Worcester, Mass. JOHN A. HERLIHY, Assistant Secretary, 588 Riverside Avenue, Medford, Mass.

1912

The following were present on June 3 at the Alumni Dinner in Symphony Hall: John Barry, Jim Pettingell, Harold Manning, Bob Wiseman, Jesse Hakes, Hugo Hanson, Walter Green, Aksel Pedersen, Harvey Benson, Harold Danser, Jim Cook, Erwin H. Schell, and your Secretary. Let's double this number next June and make it 75 at the Twenty-Fifth Reunion in 1937.

You undoubtedly have received the printer's proof of the class addresses, as prepared by Page Golsan. I certainly hope you will take the pains to check this through, correcting or filling in any addresses that you can. Page rates the hearty thanks of the Class.

Jonathan A. Noyes, manager of the Coal Mining Machinery Division of the Sullivan Machinery Company, who has been located at Chicago, has gone to Dallas, Texas, to direct his company's sales and service.

Raymond C. Foster, IX, formerly of the Borden Sales Company in New York, is now reported to be with the Premier Pabst Corporation, 221 North La Salle Street, Chicago. He is in charge of the sales of a desizing product which this company is pushing in the textile field.

Dr. John Layton Bray, Professor of Metallurgy, was appointed Head of the School of Chemical Engineering at Purdue University, to succeed Professor H. C. Pepper, who died last summer. Dr. Bray is a graduate of the M.I.T. with the B.S. degree in Mining and Metallurgical Engineering. In 1930 he received the Ph.D. degree in Metallurgy from M.I.T. From 1912 to 1922 Professor Bray was connected with mining and metallurgical industries of three different continents. Since 1923, he has held the position as Professor of Metallurgy at Purdue University. Professor Bray is author of books on metallurgy and ore dressing and holds patents on lead coating. He has also been responsible for several important research projects which have been carried on during recent years at Purdue University. — FREDERICK J. SHEPARD, JR., Secretary, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, Assistant Secretary, McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N. Y.

1914

It seems a long time ago to our June meetings, but time has not detracted from their enjoyability. On Saturday, May 31,

preceding Alumni Day we established headquarters at the Eastern Yacht Club, at Marblehead Neck. Perhaps it was the pouring rain that kept local classmates away, as only Boggs Morrison and your Secretary were on hand to greet the visitors from more distant points. By noon the sun was shining brightly, and golf at the Salem Country Club was carried out as scheduled. Back at the Eastern Yacht Club again for a most delightful shore dinner, then a pleasant evening with much song and cheer, in which we were joined by several visiting sons of Technology not fortunate enough to be officially of the Class of '14. Sunday, more golf. H. D. Shaw, R. L. Parsell, J. B. Reber, A. F. Peaslee, W. H. Price, Jr., President Buck Dorrance, and Assistant Secretary Charlie Fiske were the out-towners who came on for the festivities.

Monday we were back at Technology to try out the new Alumni Day plan. In spite of some things which might have been done to enliven the day, it went off reasonably well for the first attempt, and bids well to become a most important event in the future Institute calendars. In the evening '14 turned out at the Symphony Hall dinner with a representation of 17 and was joined by many visitors from other classes and from the Institute Staff.

We were most happy to have with us during the latter part of the evening the beloved Ike Litchfield '85. Ike had always viewed with alarm what he interpreted to be a declining interest of Alumni in sociability at reunions. He had often expressed himself that this was the beginning of an apathy of Alumni towards the Institute which, if allowed to persist, would make it difficult for the Institute to call on its Alumni for the aid which only an enthusiastic alumni body can give. He had often expressed his joy at the enthusiasm of 1914 at Technology dinners. It was, therefore, a high compliment to us that at the last Technology dinner Ike Litchfield was ever to attend he should have chosen to spend his evening with us. With all Technology we join in the mourning of the passing of one who gave much of his time and energy to aid Technology to survive the struggle of a quarter of a century ago.

In addition to those who were at Marblehead Neck, the following joined us at the Alumni Day dinner: C. H. Chatfield, E. C. Crocker, C. A. Corney, M. Goldenberg, A. N. Henricksen, L. F. Hamilton, M. C. Mackenzie, H. S. Wilkins, and B. T. Rauber.

Henry Gardner sends a clipping from the Los Angeles Times telling about the activities of our distinguished classmate, Donald Douglas. Douglas had just returned to Los Angeles from England, where he had delivered the Wilbur Wright Memorial Lecture before the British Royal Aeronautical Society. — Professor I. H. Lovett, of the Electrical Engineering Department of the University of Missouri School of Mines, writes that outside of his educational activities he has been busily occupied during the past year in the building of a new house for himself.

1914 Continued

Newell A. Thompson, who has been with the Tide Water Oil Company for the past ten years, is now in charge of the wholesale export sales of unbranded oils for that company. — Jim Reber was made a vice-president of the Columbian Rope Company early this year.

The July issue of *Electrical Engineering* contained a write-up of H. A. Affel in connection with an award of honorable mention for a paper submitted to the Institute of Electrical Engineers on the subject "Auditory Perspective — Transmission Lines." Affel has also had another patent issued to him. It covers "Volume Control Circuits."

E. C. Wente in recent years seems to be our most popular patent recipient. Three more patents have recently been issued to him. They cover "Television System," "Magnetic Telegraph System," and "Position Controlling Device." — HAROLD B. RICHMOND, *Secretary*, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

"What time is it?" Before I tell you who was there and what we did at the best reunion our Class has ever had, I want first to tell you about the lovely gift my classmates gave me. At the height of our Saturday night dinner, when everyone was at his best (if this superlative may be applied this time any more than at any other time during the weekend) the boys gave me a beautiful Hamilton strap watch, suitably marked "A. W. Mack from M.I.T. 1915 Classmates, Twentieth Reunion." Frankly, I was thrilled beyond words, and had to summon all my self-possession to express my feelings. I am very proud of the sentiment represented by the watch and I can really boast it is the best strap watch made in America. To all my classmates, whether you were at the reunion or not, I give my deepest and sincerest thanks and appreciation for your spirit in doing this for me.

If The Review censors would permit the popular style of the newspaper columnist, I could write you a glowing description of the reunion. From highways and byways the men gathered Friday night for the opening festivities and dinner, followed by the usual indoor sports, enlivened this year by a horse-race game. Early Saturday morning the Bromo-Seltzer Committee was on the job to relieve the strain of the preceding evening. Saturday morning found part of the gang playing golf and the rest of us cruising up the Connecticut River on a big power cruiser and stopping for lunch. Old age is apparently creeping up on us, for the reunion ball game was passed up for the less strenuous indulgence of batting out fungoes. Saturday evening saw our maximum attendance at dinner, with Professor Louie Young distributing the prizes, which, incidentally, he very generously donated to the Class.

I know so many of the wives and families of my classmates that I have decided, necessarily, to omit from this story any

personal references. That goes for the conduct and activities of some of the men during our party, but I must tell you that to Doug Baker from Paris went the long-distance prize of a zipper brief case, and second long-distance prize to Arthur Ball from Hollywood, Calif. The other prizes, in the nature of satires and burlesque, reflecting on the characters and proclivities of the recipients, cannot be mentioned safely here. How I'd love to tell you some of the funny details of what went on at the reunion, but if you will send me a self-addressed, stamped envelope, I'll be glad to give you the real "low-down" on the party. Sunday morning found us basking in the sun and visiting with one another over the past 20 years. Sunday noon the class picture was taken, and was distributed to the men present. Of our maximum attendance of 64, 50 remained through until Sunday afternoon for the picture. If anyone wants one of these pictures, I'll be glad to send it. Early Sunday, as a finale, we had an enormous clambake on the lawn in front of the inn. I have never seen so many good things to eat at one place at one time, and did our boys ever do a job on those clams, lobsters, chickens, and other delectable viands! All this, of course, was supplemented with the well-known amber fluid made possible by the New Deal. Except during the drive down Friday afternoon, we had beautiful weather and I recommend Ye Castle Inn, Saybrook, Conn., as a delightful place for any of our classmates to stay at any time. Our meals were enlivened by accordion and banjo music from two college boys. In Los Angeles at the same time good Ray Stringfield held a dinner and reunion of a large group of our classmates in and around that district. To the strains of 'Auld Lang Syne' and our 'Stein Song,' we departed after the clambake with the feeling that it was the best reunion ever and it had been held at a delightful place. Before the levities of a Saturday night dinner, we all rose to pay a moment's silent tribute to the 46 deceased members of our Class. The memory of these men who have shared the years with us and who are no longer with us now remains cherished with us.

The following men were present: Allen Abrams, Andy Anderson, Herb W. Anderson, Douglas Baker, Arthur Ball, William H. Brackett, Ted G. Brown, Whit Brown, Evers Burtner, Orton Camp, Paul Connor, John N. Dalton, Carl Dunn, H. C. Edgerton, Reggie Foster, Ralph Hart, Abe Hamburg, Loring Hayward, Otto Hilbert, Gabe Hilton, Wearie Howlett, Larry Landers, Azel Mack, Vincent Macconi, Charlie Malone, Bill McEwen, Bob Mitchell, Archie Morrison, H. E. Morse, Ben Neal, Johnny O'Brien, Frank Parsons, Don Perin, St. Elmo Piza, DeWitt Ramsay, George Rooney, Chet Runels, Al Sampson, Frank Scully, Sol Schneider, Jack Sindler, Bill Spencer, Herb Swift, Ercell Teeson, Jim Tobey, Fred Vogel, Virgil Wardwell, Fred Waters, Easty Weaver, Max Woythaler, Louis Young, Louis Zepfler, Sam Willis, Ed Whiting '16, Gus Caffrey, C. W. Hale, Hank Marion,

L. V. Clark, Ralph Joslyn, Ed Proctor, Charlie Williams, Harold Warfield, Eben Hill, Alan Dana.

Frank Scully and Herb Swift took movies of different events which we hope to show at dinners in New York and Boston next winter. We'd be glad to send these reels to anyone who wants to use them.

Nineteen-Fifteen is a great Class and this reunion, more than anything else, brought back happy memories of our four years together at the Institute and 20 years of dear friendships that have ripened from these early contacts. Old friends are best friends, and may the joys of 1915 go on forever! — AZEL W. MACK, *Secretary*, 72 Charles Street, Malden, Mass.

1917

Clair Turner left on January 29 for a 14 months' tour around the world. During this tour he expects to lecture on his special subject of health education and, incidentally, to extend his studies in that field. — Grafton Kennedy, formerly Captain Ordnance Department, Aberdeen Proving Grounds, has returned to Boston for the time being.

William Ayers Gray, Jr., dropped in during a brief stay in the Boston area while one of his children was being treated at a local hospital. Since we last heard from him he has resumed his commuting between Canada and New York. He reports that Ras Senter had been in the metropolis recently checking up on world conditions, interviewing international bankers, and for other purposes related to the operation of the oil-well business in the Southwest. Certain of Mr. Senter's properties are located in Louisiana, which necessitates occasional trips there for negotiations with the subordinates of the present sovereign of that realm. Ras is doing well, thank you, and wants to be remembered to everybody.

Al Hegenberger received the Collier Trophy "for his solo blind landing, for the preparatory work he has done, and for his subsequent contribution toward foolproofing the blind-landing system of the Air Corps." His work involved making flights under the worst of weather conditions. Count has been lost of the number of times he flew through cloud and fog and other adverse weather conditions.

Word has been received of the marriage of Lieutenant Commander William A. Sullivan to Miss Miriam I. Sheehan, and of Roswell E. Pfohl to Miss Margaret Elizabeth Lodge.

We note the following from the Boston *Transcript* under the heading "Flyers and Flying": "Held in high esteem by the Japanese is Edward P. Warner, formerly of Cambridge and M.I.T., now editor of *Aviation*. 'Many Japanese air people praised Warner as America's outstanding technical man,' said Harry D. Copland who has just delivered to the Japanese Navy a big U. S. Navy type flying boat."

Professor Richard D. Fay who received a hurried call to sail at once for England to take over the duties of navigator of Gerard Lambert's class J sloop, *Yankee*,

1917 Continued

was confronted with a sartorial dilemma on his arrival. It seems the professor has always felt he could sail a boat as well in dungarees as in gold braid but it was necessary for his club (the Nahant Dory Club) to authorize a member's uniform which would be in the best tradition of the Cowes regatta where Professor Fay expected to face such rivals as the America's cup challenger, *Endeavour*, and the King's yacht, *Britannia*.

Orville B. Denison '11, who is now assistant manager for The Bancroft in Worcester, sent us the following: "Lewis W. Douglas, former director of the federal budget, was elected alumni trustee for five years at the annual meeting of the Amherst College alumni society today."

Edward Pennell Brooks and John Milton DeBell came together in Chicago early in the summer and for the first time in years. Their individual comments were interesting and informative. It seems that each has retained some of the identifying characteristics and even idiosyncrasies that made both these men successful and prominent as undergraduates. Said Brooks, for example, after reciting the great joy at seeing John Milton, recites the following consistencies: "(1) He goes hatless; (2) He goes vestless; (3) His nose still itches; (4) He eats chocolate ice cream." The major changes are so similar to those that your Secretary has noted in men who were once thoroughly respectable that it will perhaps save embarrassment for us all if we do not repeat them. Incidentally, most of the changes in Penn have necessarily been reported by hearsay, for although I have been in Chicago a number of times and have called the Sears Roebuck executive when there, the demands upon him are very great and it has so far been impossible to make our free time coincide. Eventually, however, we shall land the fish and report the gossipy and, if necessary, gruesome fact in all its gory detail.

Claudius Henry Mastin Roberts, formerly Claudius Henry Mastin Roberts, Jr., has returned to St. Louis. His home address is 937 Pacific Avenue, Webster Groves, Mo. He came East as far as Ithaca to deliver another paper on his pet subject of emulsions at the Colloid Symposium; at least we assume that "Dynamic Dispersions" has something to do with emulsions, although we have not yet reviewed the document in detail. — RAYMOND S. STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

In the eternal search for peace of mind, your tireless correspondent was reading the Boston *Transcript*, date July 13, which process was enlivened by some diagrams under the caption, "Home-Building Plans." As usual the architect was our own cherished Royal Barry Wills, this time laying an unholy hand upon a house built some 150-odd, yet lingering, years ago. The original kitchen is now the dining room and the brick oven has probably become a stout casement for an oil-burning furnace. Upstairs a clutter of

rooms and closets was made into two bedrooms and two baths. But what caught our eye and held it with a frail yet hapless feeling of frustration was the place beyond the laundry labeled: "Future Maid's Room." "Mr. Wills will be glad to answer questions regarding this type of work," sez the article in closing. Well, Bill, answer this one: "Does it cost so much to have you remodel a house that the family has to give up the maid indefinitely?" or is that sheer contentiousness?

On June 3, wagging their gray beards at the feast in Symphony Hall were: Betts, Tom Kelly, Carlton Tucker, Harold Weber, and Ray Miller. To Tom Kelly goes the hand-carved shingle. Those of us who attended that soul-satisfying reunion at Weekapaug in 1928 remember Tom's declaration that he had three daughters and would now balance to partners with three sons. Son number one promptly arrived in 1929. On March 10, 1933, number two set up a loud yell as though to prolong the lovely sensation of his welcome. But what of child number six; i.e., son number three? "New Deal," sez Tom, and shudders haughtily.

Having harked back to the 1928 reunion, by any standard that makes sense we should now touch gently on the affair of 1933. The Boston crowd met at Ralph Mahony's Sterling Inn. Present as Ralph's guest was one Rose Theresa Leahy — serene, gracious, and altogether lovely. Even now I remember talking to her while the music of a distant orchestra floated through the darkness. Your correspondent had expected a less protracted interlude before shouting the happy news to a waiting world, but it was June 17, 1935, before Miss Rose became Mrs. Ralph. "The bride was lovely in a gown of white satin, with demitrain. Her veil of tulle was fashioned with . . ." oh, you know. Our own inexplicably complicated mind leaps from such descriptions to a poem of unknown authorship called "Madrigal" in Burton Stevenson's ponderous anthology under the section titled "In Praise of Her." Your effort in looking it up will be rewarded.

With the deep and abiding emptiness of a great loss, we record the passing of Mal Eales on May 24. There were services in East Orange on Sunday, May 26, and in Melrose the following Tuesday. He was a great and a good friend to all of us and his loyal interest in Technology was excelled by no other member of 1918. Business success was not enough for him; it was also necessary that his good works be written on the hearts of classmates, of neighbors, and of associates, of the boss, and of the grocer's clerk. — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1921

Another year, another volume of The Review, and another welcome to all to sit around our printer's-ink fireside. At

the start of our 15th year in this parade of the classes, preparations are already under way for a Fifteenth Reunion next June just preceding Alumni Day at Cambridge on June 1. Preliminary plans are: to meet along the Connecticut coast about halfway between New York and Boston for about three days prior to Alumni Day. Jot down the dates in your memo book and start now to plan your trip to see your classmates and your Institute on these two gala occasions.

Big news from the State of Ohio! On June 29, Mr. and Mrs. Alpheus Paul Fischley of Cleveland announced the marriage of their daughter, Helen Beatrice, to Robert Charles Dolle of Cincinnati. We know Bob's numerous friends will join us in a rousing welcome to our big family for Mrs. Bob and also in wishing the newlyweds many years of happiness. Bob was host to your Assistant Secretary when we spent the first week of June in Cincinnati and we are glad to report that he is the same genial Bob of yore, unchanged by years. As Technology's Number 1 Unique Alumnus, the goldfish farmer of Cincinnati told us of the continued success of his 60-acre, aquatic "farm," Lakeview Ponds, on Colerain Pike, Mount Airy.

Bob reported M. M. Zoller and O. L. Bardes still in Cincinnati. Miles is assistant sales manager of the Eagle Picher Lead Company, Temple Bar Building, and Ollie is Vice-President of the E. H. Bardes Range and Foundry Company, 2619 Colerain Avenue. George Dandrow '22 is with Johns-Manville, 22 East 40th Street, New York City, and James F. Downey, Jr., '20, is in the same building, with Charles E. Beaux Company.

Dugald C. Jackson, Jr., our ace correspondent, has captured additional pedagogical laurels. Writing from the University of Kansas, where he has been Head of the Department of Electrical Engineering, Dugie says, "On September 1, I am to become Director of Lewis Institute in Chicago. My new address will be Lewis Institute, 1951 West Madison Street, Chicago, nearly in the center of the city, where the Institute owns an entire block and occupies almost all of it. In addition to my new duties, I shall spend six weeks of the first semester at the University of Kansas."

"Lewis Institute is a 40-year-old, coeducational, polytechnic institution, offering courses in business administration, education, and home economics besides the engineering curriculum. There are a number of students who take their pre-professional training at Lewis for law, medical, and dental schools, and some do carry regular college work. Of recent years the enrollment has been 1,700 day students (about 1,200 men and 500 women) and 1,400 evening students, divided in about the same proportion." Congratulations, Dugie. May your achievements in your new capacity continue to win for you the recognition that has been yours in the past. Dugald, 3d, now entering his senior year at high school, may enter Technology next year to study marine engineering.

No issue is complete without a note from Professor C. E. Locke '96. This time he tells us that Rolling Stone McKinstry has returned from Melbourne, Australia, and is now with Case, Pomeroy and Company, 120 Wall Street, New York City. Welcome home, Hugh. Now that you are a near neighbor, how about giving us that complete report on your travels which we have requested so often?

Thanks to Ray Brooks, 1917's war ace, we learn that John G. Lee is with the Chance Vought Corporation, East Hartford, Conn.

Our daily trip to the big city on the Lackawanna usually affords a chat with McNeill '17, assistant Vice-President in charge of production for Colgate-Palmolive-Peet, and occasionally we meet Eggs Olcott and Bill Brown, both of Short Hills, N. J., and both of whom are with Bell Laboratories. On the ferry we usually find P. T. Coffin and H. B. Deal '20, both of Glen Ridge. Pip is with the Aluminum Company at 230 Park Avenue, New York, and Harm is in the RCA License Laboratory, 711 Fifth Avenue. Pip reports that S. Murray Jones is now in New York. Sam is rate engineer for Edward J. Cheney, 61 Broadway.

It is August as these notes are being assembled and we have just returned from a delightful vacation at Manasquan, N. J., the success of which was due to the efforts of the senior member of Hawes and McAfee, Inc., realtors, and his family. Munroe C. Hawes is, in private life, a commissioner of the neighboring town of Sea Girt, where he resides, and his partner, Jim McAfee, confided that he is being groomed as a future resident of New Jersey's gubernatorial White House in that town. As graduate engineers (Jim is a contemporary from Newark College of Engineering) both members of the firm are certainly successful in real estate and politics!

Munny has a charming wife who was a schoolmate of his sister at Mount Ida, and three fine children, Aimee who is 11, Munroe C., Jr., 9, and Elizabeth Scott, 6.

We certainly can recommend Manasquan and the firm in particular to anyone seeking a real change from the daily grind. (Adv't.) Munny gave us an exhibition of his birdie golf and now (being a director of the Spring Meadow Golf Club) threatens to take the golfing honors at our Fifteenth Reunion, as he shone in tennis with Larry Conant and Dan Harvey at the Tenth. Get busy with the slicers, toppers, and missers, gang!—RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1923

Among the unprecedentedly large amount of material which has accumulated for these columns during the summer months is much about persons getting married. On the top of the pile is a copy of the announcement by Mr.

and Mrs. William Arthur Hayes of the marriage of their daughter, Gladys Estelle, to William Barton Jones, II, on Thursday, June 20, at Los Angeles.

Then there is a mass of clippings from the society columns of Boston newspapers describing the round of social affairs incidental to the business of getting on with the marriage of Professor William Phelps Allis, VII, and Miss Nancy Olive Morison. The couple were married at the First Church in Boston on June 11, the ceremony being performed by Dr. Charles E. Park and the bride being given away by her father, Mr. Horace Morison of Boston. Professor Julius Adams Stratton, VI, was best man at his colleague's wedding and may also have had time to see the bride and groom off on a wedding trip to France where Allis's father resides. Then, according to the wedding announcement, also before me, he hurried off to Ivy, Va., to be married himself, on June 14 at St. Paul's Church there, to Miss Catherine Nelson.

Clippings from Boston papers also record the marriage of Howard H. Dawes, VI, radio engineer, and Miss Mildred L. Salmon of Everett. Samuel Hatfield '24 was best man. — I have also the announcement of the marriage of William C. Gray, Jr., XV, and Helen Chapin Lancaster on June 21 at St. James Episcopal Church, Amesbury, Mass. The couple's plans included a wedding trip to Lockport, N. Y., and residence at Amesbury on return. Gray is salesman for the Nashua Package Sealing Company, of Nashua, N. H.

In presenting announcements of engagements, I always feel as though the statement should somehow be qualified so that no reader will accept what is given here as the last-minute information on the subject. Such is the state of news in this department that much time must elapse between the event and its publication here. Particularly is this true of this issue because of the lapse of issues during the summer. Several times when I have announced engagements, the information has reached the reader some time after the couples are married and away on their honeymoon or even several months domiciled in a new home.

However, on authority of the *Chicago Daily News*, the engagement of W. K. Coolidge, X, was announced on June 20, to Miss Laetitia Bredow Kelly of Baltimore. Coolidge is Secretary-Treasurer of the Chicago Copper and Chemical Company of Blue Island, Ill.

Captain Walter E. Richards, IX-B, reported late in July to the Commander of the First Corps Area, for duty as commanding officer of the Army Air Corps at Boston Airport. Captain Richards had previously been stationed in the Philippines. He will have charge of reserve activities in this section. — John C. Flaherty, III, of Dorchester, has announced his candidacy for membership on the Boston School Committee.

A. K. Whitaker, II, gives the following account of himself: "From 1925 to August, 1934, I was located at Bradenton, Fla., where I still have an electrical-

specialty merchandising business, conducting the sale of electrical equipment such as ranges, refrigerators, water heaters, washing machines, and radios. Last year the offer was made me to become the sales and advertising manager of The Burt Manufacturing Company and I am now located here in Akron. The company manufactures roof ventilators, oil filters, exhaust heads, and special sheet-metal products. It is an established 50-year-old firm. Since coming here I seem also to have become a development engineer, working on its entire line of products.

"Inasmuch as Mrs. Whitaker was an Akron girl and I was in Akron for two years immediately after finishing Technology, we have friends here, as well as her people. This made it mighty nice in coming back. Except for two outside trips, I have been confined to the home office. On one trip east, Mrs. Whitaker and I spent the night with Wally Dibble '22 in Bristol, R. I. Wally and I were roommates in the dormitory and it certainly seemed good to see him again."

I have a letter from Harold Bjerke, XV, prominent engineer of Oslo, Norway, in which he mentions that they were at that time (June) looking forward to receiving the 20-odd American students taking part in the Thorne-Loomis European Tour.

Abbott L. Johnson, XV, writes: "Nothing particularly eventful has happened to me in the past few years except that I am now holding down the position of Vice-President and General Manager of the Warner Machine Products, Inc. I use the phrase reservedly because one never knows how long such things will last. I see quite a few Tech men as I visit other cities and most of them look me up if they happen to make a trip to Muncie. We have one daughter, Joanne, 7, which I realize is nothing to brag about when such people as Eddie Miller are considered." (For the benefit of those who came in late, the July notes recorded Ed's achievement of a family of five.)

Captain H. C. Mitchell, II, reports that physical disability is making necessary his retirement from the U. S. Army. He will take up residence in La Grange, Ill. He wrote me several months ago that his retirement would probably take place in August. Shortly after he had been transferred from Fort Totten, N. Y., to Camp Holabird, Md., last October, he spent seven months in the Walter Reed Hospital in Washington. Since leaving the Institute, Captain Russell has been assigned also to stations at Fort Benning, Ga., and at Manila and Fort Stotsenburg in the Philippines.

Cyrus L. Day, II, is Assistant Professor of English at the University of Delaware, Newark, Del. He gives the following account of himself: "I transferred from Tech to Harvard in 1920, gave up engineering entirely, and was graduated from Harvard with the Class of 1923. After four years during which I traveled in Canada and Europe, worked for the United States Rubber Company at \$12 a week, became a runner and then a quotation boy in Wall Street, wrote for the

1923 Continued

magazine *Time* for a few weeks, read manuscripts for a publishing house, studied at Columbia, and taught English at the University of Texas. I returned to Harvard as a graduate student in English, and took my Ph.D. in 1930. After a year in Europe as Sheldon Fellow from Harvard, I accepted an assistant professorship in English at the University of Delaware, where I still am and enjoying the work. I have published three books ("The Songs of Thomas D'Urfey," "The Songs of Thomas D'Urfey," and "Sailors' Knots"), and numerous articles in philological journals. I am still unmarried and feel as young as I did in 1920."

Dave Skinner, XIV, also breaks down and tells about himself: "After graduation and one year as laboratory assistant at school, I went to work for the General Electric Company at the West Lynn Works. I must have been too lazy to move because last fall, after ten years, I was still there. I had moved around quite a lot internally and finally ended up with building meters and time switches. Last fall I had an offer to move to the general office in Schenectady. I moved out here March 1 and have spent quite a bit of time traveling since then. I visit all the plants of the apparatus division, Fort Wayne on the West, Philadelphia on the South, and Lynn, East."

C. Russell Ellis, XV, makes some remarks about his experiences in several years' service with public utility corporations which are enough to support a senate investigator's dawning suspicion that all is not sweetness and light in those quarters, and reports that he is established in a life insurance business, with offices in Bristol, Pa., and Philadelphia.

Al Brantingham, XV, is now President of Thompson and Lichtner Company, Inc., Chicago. He writes: "A little over a year ago, I joined forces with Sanford E. Thompson '88, who has become extremely well known in the industrial engineering field, and as a result I am handling the western business of the Thompson and Lichtner Company. Industrial engineering, as you know, has been sort of in the 'dog house' for several years, but seems to be coming back with great rapidity as the NRA seems to be dying out. I was on NRA on a part-time basis for about a year, acting as an Administration member in order that I might gain full knowledge of what NRA was all about. On April 15 I resigned from all activity in connection therewith and now we are extremely busy doing our stuff as industrial engineers."

Somewhat belatedly, I received the announcement of the birth, at Alton, Ill., of a daughter, eight pounds, to Mr. and Mrs. Clarke C. Miller, X, on December 12, 1934. Miller is director of research at the Wood River Refinery of the Standard Oil Company (Indiana).

I was unfortunately in Texas at the time of Alumni Day in June and could not take in the affair, and so cannot report on the 1923 representation. Advance reservations had been sent in for the

Alumni Dinner by James K. Clapp, VI, Richard H. Frazier, VI, J. Allen Weaver, VI, Bernard E. Proctor, VII, and Bertram E. Warren '24. Dave Skinner, XIV, had also mentioned in his letter that he was going to try and make it. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1924

It is with the deepest regret that the Secretary records the sudden death, on June 27, of Bill Croft. Despite some impairment of his health, Bill was one of the stand-bys of the Class whenever help was needed, and his loss will be keenly felt.

During a quick trip to the East Coast this summer, Bill Robinson found time to stop in for a luncheon date with the Secretary, and the reminiscing period got under way. He had made a few stops on his way from Los Angeles, and was full of news and inspiration on class doings.

— Now the summer is ended, it is hoped that the course correspondents will throw off their mask of silence, and come through with some news. How about sending them a note about yourself? — F. A. BARRETT, *General Secretary*, 50 Oliver Street, Boston, Mass. ELMER W. BRUGMANN, *Assistant Secretary*, Room 2-131, M.I.T., Cambridge, Mass.

1926

Every '26 man encountered by the Secretary inquires about our Tenth Reunion next June and every one the Secretary has seen is planning to be present. Unquestionably our tenth-year reunion will be an important and gala affair; it should be the largest reunion the Class has or will have. A committee is being formed and will start work this fall and a poll will be made of the entire Class to determine the sentiment about the location of the reunion and the form it ought to take.

The customary baseball game between the married men and the single men may not be possible at the next reunion if the marriage rate continues at its present level. On June 6 Arthur Donald Green was married to Miss Jane Randolph Whipple of Baton Rouge. Green has been employed as a chemical engineer by the Standard Oil Company of New Jersey and is now residing with his wife at Elizabeth, N. C. — On June 29 Ralph Edward Smith was married to Miss Millicent Elinor Atkinson of Bridgeport, Conn.

As the Secretary has opined before, one of the pleasantest aspects of being at Technology is the opportunity to see many returning members of the Class. M. W. Davidson, of Harrisburg, Pa., made his customary and welcome mid-summer call. He is with the Telephone Company and reports two children. John R. Kimberly, assistant general superintendent of the Kimberly Clark Corporation, Neenah, Wis., called by the office in June. He was at Technology looking for new men for his company.

— Dave Shepard, much to the Secretary's astonishment, appeared one hot day in July, fresh from Paris, where he represents the Standard Oil Development Company. Dave was making a business trip back to the States for a few weeks and he hopes to repeat the trip next June at reunion time. He reports that his wife and young daughter enjoy living in Paris. — Ray Gordon Speare of Detroit was another welcome summer visitor. He is with Fisher Body Corporation and reported that S. L. Kirloskar, one of our classmates who returned to his home in India after graduation, together with his wife visited at the Speare's home, then in Flint. Kirloskar is general manager of his father's plant in India which manufactures plows, pumps, metal furniture, and similar bric-a-brac. He has two children. After touring this country for three months he returned to his home in India.

The New York *World Telegram* reports that William Kalker has become associated with Walter and Samuels, Inc., as manager of its Mortgage Loan Department. — Harry Weinstein, in a letter to the Secretary, reports that he has with a partner organized the advertising agency Edward Linn Associates in New York. After graduation Weinstein was employed by the Columbia Gas and Electric Corporation in Cincinnati. In 1929 he returned to New York and worked for three years as plant superintendent of a large Brooklyn children's games and printing company. Next in his saga of diversity, he joined with a friend to set up a retail refrigerator business, handling the advertising and promotion. It was thus but a step from this enterprise to the advertising agency which now occupies his attention. — Bob Brand reports that he has left the Barber-Colman Company in Rockford, Ill., to set up an advertising agency himself in that same location. Thus he, like Weinstein, joins that large group of Technology men who have gone into the advertising field. He has our best wishes for success.

The Class had a fair representation at Alumni Day last June. At the request of the Secretary, Elton Staples made the following report on those present at the dinner in Symphony Hall: William H. Callahan, Bertha Mineral Company, Austinville, Va., married, no children; Eben B. Haskell, C. H. Tenney and Company, Boston, married, two children; Frederick P. Broughton, Gulf Refining Company, Boston, married, one child; Ronald J. Martin, Somersville Manufacturing Company, Somersville, Conn., married, one child; Chester F. Buckley, Taunton Electric Light Company, Taunton, married, no children; A. Paul Gabrenas, State House Annex, Trenton, N. J., married, one child; Natale Gada, General Electric Company, New Haven, Conn., not married; Herbert J. Kaufmann, Mutual Chemical Company of America, New York City, married, two children; Harold A. Willoughby, 24 Worcester Street, Boston, married, one child; Philip M. Richardson, Simmons College,

1926 Continued

Boston, married, no children; Ralph A. Hammar, General Electric Company, Schenectady, N. Y., married, one child; Earl Wheeler, A. F. Peaslee, Inc., Hartford, Conn., not married; George W. Wardner, Wellesley, not married; Elton E. Staples, Gulf Refining Company, Boston, married, two children; J. R. Killian, Jr., Technology Review, married, two children. In addition to these men who attended the dinner, Sid Brooks and Gurney Fine were at the Institute during the day, the latter attending the class tea that was held at the University Club prior to the dinner (Phil Richardson poured). At the dinner in Symphony Hall, the Class wrested from 1914 the reputation that group has had for attracting attention and gaining notoriety at alumni dinners. Several of those present will long remember the dinner but not much of it, and several found the dinner and the program more enjoyable from the remoteness of one of Symphony Hall's better known anterooms, while others dragged Tubby Rogers, who as you will recall is an esteemed honorary member of the Class, almost bodily from the head table to a seat of honor at the class table. But let further details rest until the reunion when they can doubtless be rehearsed in more complete detail than the columns of this sedate family journal permit. — J. RHYNE KILLIAN, Jr., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1928

The fall class news season started off with a bang and in the following paragraphs you will run across news from classmates in all parts of the country. You will see that many changes are still taking place — new engagements, new marriages, new families, and new jobs — and there seems to be no let-up in the procession to and from the altar. Our first news note takes us down to Mexico.

H. Blackwood has left San Luis Potosi, where he was with the Cia. Metalurgica Mexicana, S.A., and is now with the Mexican Candelaria Company, S.A., at Mazatlan, Sinaloa. — We have just learned that C. M. Loeb, Jr., metallurgical engineer in New York with the Climax Molybdenum Company, is on a business trip to England, France, Germany, and Russia. He expects to return late in August, and we hope to have some real news to publish on the trip.

Harold L. Geiger, until recently chief metallurgist of the Wisconsin Steel Company, has become a member of the research and development staff of the International Nickel Company, where he will work on nickel, iron, and steel. — Jim Allan is now in Washington, D. C., working for the Government; home address, 4707 Fourth Street, N. W.

Early this summer the engagement of Miss Mildred Welch of Westboro, Mass., to Phillip Proctor was announced by Mr. Ernest F. Welch. No date has been set for the wedding.

Our sincere congratulations to Pete Kirwin on the arrival of Peter Henry Kirwin, Jr. This young man made his

début on April 24 in the Presbyterian Hospital in Philadelphia. Pete reports as follows: "Mother and child doing nicely and the old man as well as can be expected." The new Kirwin family are now living at 248 Dudley Avenue, Narberth, Pa.

Bill Woods, III, called at The Review office on July 20. He is now in Houston, Texas, working as a petroleum engineer for the Gulf Refining Company. Bill is the father of three children: a girl, 5 years, Dorothea; a son, aged 4, William, Jr.; and another son, aged 2, James. As far as we know, three children set the class record to date. If anyone has exceeded this number and kept quiet about it, it is high time that we spread the news in this column.

Bill reports he runs across Norm Estes, XI, quite often and that Norm — that old New Bedford whaler — is slowly but surely developing into a Texas Colonel. Norm works for Wallace and Tiernan as their southern representative for water-purification equipment.

Bill also reports that Pete Moyano, I, is located about 30 miles from Mexico City, Mexico, where he is in the contracting business with his father. — We have learned that Ev Lester, II, has a young son. Further details of this big event are earnestly requested from the proud father. — Abraham Woolf, IV-A, recently became engaged to Miss Ruth Heller of Boston. Congratulations!

The Southern New England Telephone and Telegraph Company has attracted a number of our classmates. Bob Pursell is now construction supervisor with this company. A. R. Keith — the proud parent of two youngsters, one a girl, age three-and-a-half, named Marilyn, the other a boy age 15 months, named Allan Phelps — works in the Traffic Department. Bob Smyth, XV, is also in that department and bears the additional distinction of still being single.

Our congratulations to J. F. Mulvey on his recent marriage in New Haven, Conn., to Miss Ann Scully. The wedding occurred on June 10, 1935. — On June 24, 1934, David Olken, IV-A, was married to Gladys G. Gisner of Boston. Dave is now superintendent at Emile Bernat and Sons Company. George Bernat, IV-A, is sales manager of the same firm. — GEORGE I. CHATFIELD, *General Secretary*, 5 Alben Street, Winchester, Mass.

1930

COURSE VI-A

I was pleasantly surprised to have a call from George Schaible not long ago. He said that he and his wife had finally decided to accept our oft-repeated invitation to visit us. Parenthetically, I want to make it clear that I have not lapsed into the editorial "we." It's just that the partnership into which I entered a year ago last April still holds. To return to the subject, George and his wife drove down from Albany and we had a very enjoyable week-end together. As you all should know, George is working for the New York Telephone Company in Albany and

absorbing an enormous amount of varied experience both in regard to the inside and outside telephone plant. We hope to visit the Schaibles when the foliage along the Hudson wears its brightest hues. George has proven to be the Stanley we were all counting on. He found Cillie, not in darkest Africa, but in Schenectady, N. Y. Cillie is now working for the Chocolate Sales Corporation, general distributors of Hershey's products. He enjoys his work very much and his experience proves once again that VI-A prepares men for all things. — E. E. FERGUSON, *Secretary*, 321 Park Avenue, East Orange, N. J.

1933

It's just another reminder that summer is over when it comes time to write up some notes again. I suppose it will be just so much harder this year because we are getting rather settled and the news is getting scarcer.

During the summer we had a fishing trip for the boys and their gals down here in New York. Altogether we had 23 along. We started with the ruling that the keg was not to be tapped until some one caught a fish — but we couldn't hold out — after all, if the fishin's no good, we had to do something — so —. There'll probably be another next year. Among those present were Fred Roetting, who is working with R.C.A. Victor in Camden, N. J.; Bill Moore, who is with the Pan American Oil Company, and Mrs. Bill; Dick Valentine, still at the Institute; Ed Goodridge, of Goodridge Engineering; H. S. Farney of Coastal Geodetic Survey; Morris Guralnick, who is with Gibbs and Cox in Naval Engineering; Jack Andrews of *Factory Management* magazine; Ed Rowell, who is working in Jersey; and Leighton Rickards, who has recently started with Bendix Products Corporation here in New York in the industrial fan division.

Of course, the big news of this issue is that our Class President, Dick Fossett, has deserted the ranks of the bachelors and is still in Kansas City with Procter and Gamble. Congratulations, Dick.

The society pages of the newspapers report the following big events in our history: The engagement of Francis T. Hall, Jr., to Miss Florence N. Nelson, date set in September; the engagement of Lorenzo Cianciolo to Annette Vita; the engagement of Laurance Drake Sibley to Miss Dorothy Ferguson; the engagement of Newland F. Smith, Jr., to Miss Caroline Crosby, date set in September; engagement of Lieutenant Carroll T. Newton to Miss Francis H. Hurlin; the marriage of Stanley Oren to Miss Helen Grumpelt in June; the marriage of Athelstan Frederick Spilhaus to Miss Mary Atkins; the engagement of Werner Rose to Miss Eunice Hand; the marriage of Arthur B. Fox to Miss Dorothy L. Wright in June; the engagement of Donald A. Thompson to Miss Betty Klinefelter; the marriage of Lieutenant Don Neil to Miss Hannah Harkness; and the engagement of our insurance peddler, Norm Harris, to Miss Phyllis Hartley.

1933 Continued

A card from Em Norris tells me he hasn't any notes for me but that Bob Macy was married this summer in Washington. Good for you, Bob! This being away from home sure seems to make the boys prosperous or something. We confirmed bachelors will have to try it.

Let's hear something from you fellows out there whom we haven't heard from yet. — **GEORGE O. HENNING, JR.**, *General Secretary*, 163 Barbey Street, Brooklyn, N. Y. **ROBERT M. KIMBALL**, *Assistant Secretary*, Room 3-106, M.I.T., Cambridge, Mass.

COURSE I

Herb Grundman took the fatal step and married Miss Gladys Davis at Paterson, N. J., on Saturday afternoon, June 29. Among those attending were Ing Madsen and Leo Dewar; and all the rest of your classmates join in wishing you the best of happiness, Herb.

Assigned to duty with the CCC for six months were 2nd Lieutenants Bradley of the 341st Engineers, Link Ryder of the same, and Mat Piskadlo of the 371st Engineers.

Ing Madsen has completed the first year of his two-year research program at the Fritz Laboratory, Lehigh University, as American Institute of Steel Construction Research Fellow investigating steel bridge flooring.

Johnny King writes that he is still with the Bureau of Reclamation in Denver, while Horace Taul is residing temporarily at Richmond, Calif., on an engineering project for the Standard Oil of California. Westy and I had dinner in Boston a month or so ago. He is still with the Boston Consolidated Gas Company.

As for myself, I have taken a job with the Ingersoll-Rand Company in Phillipsburg, N. J., as a student engineer. I am living in an apartment at 16 South Bank Street in Easton, Pa., and expect to be here until November, when I shall move to the other plants in Athens, Pa., and Painted Post, N. Y. Working here with me is Tom Burton '34, and Bob Rogers of our Class is also at the plant. Let me urge any of you who are down this way to drop in, and write in any news you may have of our fellow Course I members. — **DOUGLAS M. STEWART**, *Secretary*, 16 South Bank Street, Easton, Pa.

COURSE VIII

Your Secretary has had quite an exciting summer, the best part of which was a trip to the Oxford Group house party at Oxford, England. The Oxford Group believes that changed economic, social, and political conditions throughout the world can be brought about only by changed individuals, and is out to win the world for Christ. Late in June, 60 of us sailed from New York on the *Majestic* to join, in Oxford, a group of people hailing from 45 countries throughout the world. During the 24 days of the house party, some 10,000 people from every walk of life attended, all of them interested in seeing at first hand an international movement of vital import in the

world today. At Oxford they found the basis for certain events occurring throughout the world today, the basis upon which, for example, French and Germans in Alsace-Lorraine are meeting together and unitedly finding the answer to personal mistrust and national ill will. We saw why the press of South Africa united in saying that through the influence of the Oxford Group, the race problem of South Africa is on the way to solution, and why the Prime Minister of Canada could say that since the coming of the Oxford Group to Canada, the whole task of Government has been made easier.

Ivan Getting was bicycling on the continent when I got to Oxford, but he came back for Degree Day on July 20. He received his Doctor of Philosophy then at a very colorful ceremony in the Sheldonian Theater. He left Oxford on the 22nd, again via bicycle, for Liverpool, where he caught a ship for Boston. As you doubtlessly know, Ivan has an appointment as a Science Fellow at Harvard, and so he will be in Cambridge for a while.

These notes certainly seem to be a European journal. From Oxford, I went up to London for a few days, and, like all other visitors, went to see the changing of the Guards at Buckingham Palace. I had been there about two minutes, when a fellow said, "Hello," and it turned out to be Paananen. He has been spending the winter in Finland. It sounded great, as he stayed up in the country, with plenty of snow, winter sports, and so on. He was on his way back to Boston, and vicinity, via London and Southampton. — **WILBER B. HUSTON**, *Secretary*, 61 Gramercy Park, North, New York, N. Y.

1934

Dick Bell was married, on August 10, to Miss Celeste Brown, daughter of Mr. and Mrs. Lovey L. Brown, of Paris, Tenn. — James Sweeney was elected, April 28, to the presidency of the New England Province of the Federation of College Catholic Clubs. — Mr. and Mrs. Jerome B. Stratton of Nashua announce the marriage of their daughter, Miss Mildred G. Stratton, to Mr. Edward B. Locke, Jr. Mrs. Locke is a graduate of the Keene Normal School and attended the University of New Hampshire. Mr. and Mrs. Locke are living in Copake, N. Y.

Miss Betty Helen Coe, daughter of Charles Francis Coe, was married to Edmund D. Lucas, Jr., on June 10. The bride attended the Ogontz School in Philadelphia. — Miss Harriet Thurman, daughter of Mr. and Mrs. Oliver Thurman of Summit, N. J., was married to Carroll Dee Fentress on June 29. Mrs. Fentress graduated from Radcliffe College and was President of her class in 1934. After a motor trip, Mr. and Mrs. Fentress will live in Chicago. — Miss Pauline Spencer, daughter of Mr. and Mrs. Frank Norton Spencer of Bronxville, N. Y., was married to Samuel A. Groves on May 11.

Miss Alice Elizabeth Schom, daughter of Mr. and Mrs. Gustav B. Schom of Douglaston, N. Y., was married to Mr. Charles Albert Wesley, on June 1. Mrs.

Wesley is a graduate of Saint Mary's Hall. Miss Esther Herrick, daughter of Mr. and Mrs. Charles R. Herrick, of Reading, Pa., was married to Leonard Van Horn, on June 30. Mr. and Mrs. Van Horn will reside on Commonwealth Avenue, Boston. — Mr. and Mrs. Joel Martin Barnes of Newton Centre announce the engagement of their daughter, Miss Betty Alden Barnes, to William H. Slade. — Mr. and Mrs. Wentworth C. Carr announce the engagement of their daughter, Miss Barbara Carr, to Glen P. Woodbury. Miss Carr is a graduate of Wellesley, Class of 1935.

Johnnie Newell and Henry Humphreys have joined the merry throng of classmates at Bethlehem Ship Building Corporation, Fore River Plant. — **ROBERT C. BECKER**, *General Secretary*, Compania Huanchaca de Bolivia, Pulacayo, Bolivia, S.A. **HOYT P. STEELE**, *Assistant Secretary*, 27 Beechwood Street, Quincy, Mass.

1935

Do you remember the notorious senior banquet of a short time ago? A reproof, me lads, a reproof. To think that a class which showed so much spirit at the banquet could drop out of sight and hearing so completely is unbelievable. Show that "go-get-'em" spirit of '35 and write in about your latest escapades. This is the Class which ought to put the others to shame in the T. R. scandal section.

Well, to get back to the bits of news, we find that the bally Englishman, George Bull, is very, very busily engaged in playing tag with the devil. It seems that he has been loafing in anticipation of hard work with the N. Y. T. and T. in Albany. From a news article it seems that Brownie (Murray) Brown has gone to St. Paul, Minn., to "fill a position in the engineering department of the Northern Pacific Railroad." Probably rodman. Right, Brownie? Your Walter Winchell ran across Bernie Nelson at school a short time ago. He also is taking things easy while waiting for a job with the N. Y. T. and T. to start in Albany.

Hearsay has it that Henry Kimball and Jack Hossfeld have accepted positions with United Shoe Machinery. We'd like to have more complete data on this. I had an interesting letter from Dick Whitmore a short time ago. He reports that he is with the Westinghouse Lamp Company in Bloomfield and has started at the very bottom of the electronic tube exhaust department. "Interesting work and not too exhausting." Address — 55 Watessing Avenue, Bloomfield, N. J. Now we come to one of the really choice bits of this column: Jeff Farmer and Miss Christine Ranny of Watertown, Mass., are engaged. Congratulations, Jeff. Through another source, we dug up the fact that Jeff has a position with the Goodyear Company in Akron, Ohio. What's the address in Akron, Jeff?

From Professor Locke we have the following: "Malcom A. Porter, after graduation, returned home to Baltimore, stopping over *en route* in New York and Washington to see various people. He left about the first of July for a trip to

1935 Continued

Europe, combining business with pleasure, the business being visits to various mining and metallurgical operations, with the expectation that his trip would last about six weeks." You lucky guy, Mal.

Frank Sellev is the only one of our budding architects from whom I have heard. He is working for Hogg and Campbell, architects, in Boston. He reports that he has been getting acquainted with nearly all the aspects of the architectural game. Likewise only one of the great electrical crew has been heard from: Vin Ulrick is working for the government. At present he is training on a government ship, address: U.S.M.V. *All Alone*, care of Sup. Nav. and Stmbt. Insp., 408 Atlantic Avenue, Boston. Vin says that he is to have charge of the radio as soon as it is installed.

Had an interesting letter from Dick Jarrell recently. He reports that Bill Parker is "playing at organic chemist for National Color Pigment Company in Newark, N. J., and stopping at the Elizabeth 'Y.'" Just what a physicist is doing as an organic chemist you will have to guess for yourselves. Dick himself is at present working as a playground instructor in Newton. He had expected to take the Public Service Administration course at school, but that fell through. I have a few more of these "hearsay" notes to get off my chest. Rumor has it that "Kingfish" King has a job with an asbestos company in Pennsylvania. Zay Curtis and Sam Fox appear to be working with an airplane company in Hartford. More guesswork indicated that Al Roth is with Procter and Gamble in Cincinnati.

Tom Graham writes: "I am back in good old Montana once more, right where I belong. It worried me to think of taking a position some place in the East, but good old Anaconda Copper came through and gave me a position in the research department at the smelter in Anaconda,

only 26 miles from my home in Butte. Stanley Lane drove out with me from Boston in my old Ford and he is working in the chem lab for the American Smelting and Refining Company in Helena only 60 miles away." He goes on to say: "There are three Katie Gibbs girls and two Wellesleyites home now in Montana, so there is always a chance for a good old scientific bat." We wonder just how scientific these bats are, Tom. Perhaps the continued study of Calculus?

Course XV crashes through again with news of three of the "bookkeepers." Hank Bromley and Miss Ruth Ward Dana will be launched on the troubled waters of matrimony by the time you fellows read this tidbit. The happy day was August 27. The couple expect to live in Germantown, Philadelphia, Pa. More power to you and the best of happiness, Hank. Jack Ballard writes the following: "I'm enjoying my job helping (?) the Reliance Electric and Engineering Company make motors. I've been on production control lately, and next week will theoretically take the place of the production man in charge of the machine department while he's on vacation. If this goes beyond the theoretical stage, I fear me that the machine department will be a hectic place, with the punch-presses cutting out paper dolls and shredded wheat or something of the sort coming out of it instead of motors. However, I've been learning a lot and having a lot of fun. I approve very highly of Cleveland, which is an entirely new place to me; consider myself very fortunately located in respect to both working and living." I wonder if Cleveland (as represented by the fair sex) approves of Jack as much as they did in Boston.

A card from Pat Patitz indicates that he is, or was, in Mexico City. A news article informs us that Guy Haines is one of nine young fellows to enter the school of Reserve Naval Aviation Cadets. An-

other news article tells the tale of Lars Ekwurzel. It has been announced that Miss Helen Gohn and Lars are engaged. Howard Staley has been awarded a two-year fellowship at school to study for a master's degree and to carry on research in building materials under Professor Voss. Vin Cook is working for Burtis Brown, engineer, in Boston. Speaking from experience, Mr. Brown is a fine man to work for and Vin has every chance to get real experience in the construction game. That little bundle of dynamite, Bill Klehm, is working for his father at present in the plastering game, and bemoaning the loss of his driver's license. We guess that a certain Ruth does not appreciate the loss of the license either. He reports: "The hours are wonderful — from nine in the morning to three-thirty in the afternoon, and the pay is enough to exist on." Seems as if Bill is continuing the long hours of work which became a habit with him at school.

At present there are four of the gang here in Buzzard's Bay working for the U. S. Engineers on the Cape Cod Canal: Bob Greer, Larry Hall, Jack Miller, and yours truly. We are all working with different survey parties and have experienced no difficulty in acquiring a good tan. The work is very enjoyable indeed, for we hide out and do nothing whenever the office runs out of jobs for us to do. The pay is pretty good, considering that we are laborers. I think that we all agree that the best way to go nuts is to try and figure out how the Civil Service is run, for the job is being done by C. S. employees. We spend our week-ends in Boston and the rest of the evenings anywhere on the Cape that seems interesting.

Here's a challenge for some of you lazy letter writers. I dare you to write once in a while, even if it kills you. — ROBERT J. GRANBERG, *General Secretary*, 9 Old Town Road, Wellesley Farms, Mass.

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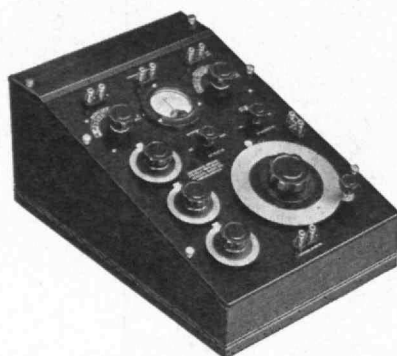
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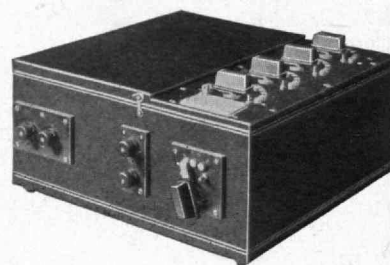
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(BELOW) for the precise measurement of capacitance and power factor . . . range: 1 μ mf to 10 μ f from 200 to 10,000 cycles . . . with suitable standard and supply source capacitance balance adjustable to one part in a million . . . standard resistor 4-decade 1-11, 110 ohms, variable in 1-ohm steps . . . adjusted to 0.1% . . . bridge elements and cabinet thoroughly shielded . . . input and output transformers shielded astatic type, input working between 1,600 and 10,000 ohms . . . output between 200,000 and 25,000 ohms. One of the first General Radio bridges which has been improved upon from time to time and is generally accepted as the standard of its type.

Price*: \$175.00



**Prices for U. S. and Canada*

GENERAL RADIO COMPANY



Cambridge, Massachusetts